First 1934 STEWART-WARNER REFRIGERATOR
Off the Line! Just Out of the Final "Hot-Room" Test . . .
ALL READY FOR A LIFETIME OF SERVICE!

OTIS and HITER

Watch the Last Nail Driven Into the *First* Packing Case

What Kind of a Refrigeration Job is in That Case?

Every Competitor in the Field Would Like to Know!

Every Competing Distributor Would Like to Know!

Every Competing Dealer Would Like to Know!

Joseph E. Otis, Jr., left, and Frank A. Hiter, right, watch Charles D'Olive, Sales Manager Refrigerator Division, sink the last nail!

Because

Everybody Has Heard That Stewart-Warner Has a Great Achievement in Its 1934 Refrigeration Line!

Therefore . . . You Owe It to Yourself to Consider this Line and What is Back of It, Before You Make a Decision. Only a Few Territories Still Open! *Write! Wire! or Phone Us Direct!*

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STEWART-WARNER CORPORATION, Dept. 4, 1828 Diversey Parkway, CHICAGO

THE NEWSPAPER OF THE INDUSTRY

ELECTRIC REFRIGERATION NEWS

WRITTEN TO BE READ ON ARRIVAL

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HEARING DATE ON COMMERCIAL CASE CODE SET

Beverage Dispensing Manufacturers May Be Included

WASHINGTON, D. C.—Public hearings on the code for the commercial refrigerator industry as proposed by the Commercial Refrigerator Manufacturers Association will begin at 10 o'clock Thursday morning, Nov. 9, in the small ballroom of the Raleigh hotel here, according to an announcement made by the National Recovery Administration.

Deputy Administrator Malcolm Pirnie will preside at the hearings. Such hearings, according to the policy laid down by the Recovery Administration, are solely for the purpose of obtaining in the most direct manner the facts useful to the administrator, and no arguments will be heard or considered.

It has been suggested that the code of fair competition for the commercial refrigerator manufacturing industry be included in or related to a code of fair competition including the beverage dispensing equipment industry and the counter type freezer industry, and this suggestion will be given consideration at the hearing.

The proposed code for the commercial refrigerator manufacturing industry was published in the Sept. 13 issue of ELECTRIC REFRIGERATION NEWS.

HUTCHINSON DIRECTS ALL SPARTON SALES

JACKSON, Mich.—E. R. Brower, formerly sales manager of the refrigeration division of Sparks-Withington Co. of this city, manufacturer of Sparton refrigerators, has been named West Coast manager for Sparks-Withington Co., according to an announcement made by officials of the company.

E. T. H. Hutchinson, sales manager for Sparks-Withington, now has charge of refrigerator sales.

Sparton officials have also announced that W. Royce Bemish has been named district manager of the Northwest territory for Sparton refrigerators. Mr. Bemish was formerly with Apex Electrical Mfg. Co.

PHYSICIST WILL DISCUSS NOISES IN REFRIGERATORS

DETROIT—Scientific investigations into causes and remedies for noise in electric refrigerators will be spotlighted in the next meeting of the Detroit A.S.R.E., Monday night, Nov. 20.

Dr. Floyd A. Firestone, professor of physics at the University of Michigan, is to be the principal speaker on the topic "Diagnosis in the Reduction of Refrigerator Noises," with experimental demonstrations.

Although plans have not yet been completed, it will be a dinner meeting, with Prof. Hugh Keeler of the University of Michigan presiding. Further details will be announced in the next issue of the NEWS.

G-E, York to Condition Streamlined Train

YORK, Pa.—The new high-speed streamlined diesel-electric train now under construction for the Chicago, Burlington & Quincy Railroad Co. will be completely air conditioned.

York Ice Machinery Corp. here is supplying a portion of the air-conditioning equipment through General Electric Co., which has undertaken the complete electrical and air-conditioning equipment of the train.

Comprising three cars permanently coupled, with total weight of only 80 tons, as compared with an average weight of 400 to 500 tons for steam trains of like capacity, the new train will have a service speed of about 100 miles an hour.

The air-conditioning equipment is light weight throughout, the complete air-conditioning system and auxiliary electric units not to exceed a total weight of 3,000 lbs.

Norge Conventioneers Keep Up on their Reading

Ned Vestal of Minneapolis slipped away from the Norge distributor convention sessions to read Electric Refrigeration News, but he was detected and soon Fred Adams of Waterloo, Iowa, A. C. Reinhard of Minneapolis, F. B. Reed of Hastings, Nebr., and Harold Smithers of Omaha had gathered around him to get the latest industry news.

SERVEL TO ADD TO ELECTROLUX PLANT

EVANSVILLE, Ind.—Extension and alteration of the Electrolux refrigerator plant of Servel, Inc., here were started Nov. 1 to increase 1934 production facilities, according to F. E. Sellman, vice president

"We hope to complete the new arrangements by the middle of December, so that everything will then be in readiness to begin production in all departments," says Mr. Sellman.

"Several small buildings will be added to the plant. Departments not affected by alterations or extensions will begin operations early in November, following inventory taking, but in those departments where extensive changes are planned, actual productive operations will be delayed until reconstruction work is completed."

LEWIS GIVES LICENSE TO DETROIT LUBRICATOR CO.

MINNEAPOLIS—Lewis Air Conditioners, Inc., of this city has just granted Detroit Lubricator Co. a license to manufacture air-conditioning controls under Lewis patent No. 1,785,741.

This patent covers an air-conditioning system in which humidity cannot be added to the air unless *both* the humidistat and heating thermostat call for humidification. It prevents humidification except when the heating medium has attained a tempera-

(*Concluded on Page 2, Column 5*)

Detroit Radio Wholesalers Bar Discounts in Standard Franchise

By Phil B. Redeker

DETROIT—An agreement embodying a uniform distributor-dealer franchise on radio receiving sets has been approved by the Detroit division of the Radio Wholesalers Association and the Greater Detroit Radio Dealers Association and will become effective Nov. 10.

Final action was taken on the agreement at a meeting held Nov. 1, at which time all but two radio wholesalers in the Detroit area signed the agreement.

The action taken is described by A. H. Zimmerman, president of Republic Supply Corp. and chairman of the distributors' code committee, as an "effort to codify distributor-dealer relationships pending such time as a national code for wholesalers is promulgated and signed."

The agreement will be filed with the National Recovery Administration indicating the wholesalers' efforts to comply with the National Industrial Recovery Act. The agreement does not attempt to regulate hours of work or rates of pay.

Principal features of the uniform franchise is the banning of sales at a special discount to employes and others, a clause which restrains distributors from furnishing the services of their own employes for the purpose of relieving the dealer of the expense of similar employes, recognition of the advertised price as the price for a cash sale, and the barring of service companies and others not keeping three models in stock at one time from receiving the dealer discount.

According to present plans, the local Better Business Bureau will supervise the operation of the agreement.

Salient provisions of the agreement are excerpted as follows:

"It is agreed that the 'list price' of all radio sets shall be that price established by its manufacturer and so advertised, and the same price as used by the distributor in computing his purchase costs to the manufacturer, i.e., the 'list price' shall be a *true* 'list price,' and not subject to allowance of any lump sum amount before or after computing sales discounts either between the manufacturer and distributor or between the distributor and dealer."

"This distributor agrees that wholesale prices established by agreed discounts shall not be reduced directly or indirectly by rebates, discounts, premiums, bonuses or subsidies, nor by paying any of the operating expenses of the dealer's business, nor the payment of salaries, wages, or commissions of a dealer's employe, or by the payment of any bonus or compensation to dealer's salesmen for the pur-

(*Concluded on Page 24, Column 3*)

Hearing of Code for Wholesalers To Begin Nov. 13

WASHINGTON, D. C.—Hearings on a code of fair competition for the wholesale trade (excepting food and grocery wholesalers) will be conducted by Division Administrator A. D. Whiteside in the ballroom of the Mayflower hotel here, beginning at 10 o'clock Monday morning, Nov. 13, it has been announced by the National Recovery Administration.

The Radio Wholesalers' Association, and the National Wholesale Hardware Association are among the 14 associations which have joined in presenting a code.

The proposed code establishes a basic 40-hour, six-day week for general employes, except executives, and a 48-hour week for outside deliverymen, maintenance employes, outside repair servicemen and installation employes, but provides further:

"An employer may work any employe in excess of the above maximum hours of work under either, but not both, of the following plans:

"(1) Forty-four hours per week during a period of not exceeding 10 consecutive weeks in any one calendar year, if he is paid at the rate of time and one-third for all hours in excess of the said 44 hours.

"(2) Such hours as may be reasonably necessary, in excess of 44 hours per week, if he is paid at the rate of time and one-third for all such additional hours per week."

Minimum wages proposed (with a differential of $1 in favor of the South) are $14 per week in cities of 500,000 or more population, $13 in cities between 100,000 and 500,000, and $12 in cities of less than 100,000. Learners and "junior employes between 16 and 18, are to receive $1 a week or less than the minimum."

For administrative purposes the code provides that the trade be divided into 12 commodity divisions for buttons, dry goods, embroidery, floor covering, hats and caps, jewelry, radio, sheet metal, theater supplies, upholstery and decorative fabrics, and wallpaper, with further authority to the administrator to create as many more divisions as he sees fit.

PHILADELPHIA ENGINEERS VISIT U. S. NAVY YARD

PHILADELPHIA—Naval refrigeration drew the attention of the Philadelphia section of the American Society of Refrigerating Engineers on Monday afternoon and evening of last week when the group toured the newly re-conditioned battleship *New Mexico*, and the Naval aircraft factory here in full operation (with its refrigerating plant for testing operation of airplane motors at low temperatures).

The group was in charge of C. R. Logan, chairman of the Philadelphia section, and head of the refrigeration sales division of the Philadelphia Gas Works.

Following the afternoon at Navy Yard, a dinner meeting at the Engineers' Club was addressed by the host of the afternoon, Lieut. Commander T. L. Sprague, superintendent of the Aeronautical Engine Laboratory of the Naval aircraft factory.

Among the out-of-town visitors were A. W. Oakley and David L. Fiske, president and secretary, respectively, of the American Society of Refrigerating Engineers; William Reynolds, advertising manager, and Al. McGinty, assistant advertising manager of Electrolux Refrigerator Sales, Inc.; A. E. Lee, Electrolux sales engineer; and Prof. M. C. Stuart of the engineering department of Lehigh University.

NORGE TO SPEND MORE ON SALES HELPS IN 1934

Distributors Told of Policy Change; New Line Previewed

By Elston D. Herron

DETROIT, Nov. 6.—"Remember—1934 will be a crucial year for Norge!"

Only one of the four days of Norge Corp.'s fifth annual distributor meeting is gone as this is written, yet already that statement has become the theme-phrase of the convention, for during today's two sessions, it was voiced a score of times by President Howard E. Blood and John H. Knapp, vice president in charge of sales.

To distributors, the meetings were significant in that they marked a definite change in Norge Corp.'s merchandising philosophy. Heretofore, Norge has concentrated on building a good product, and has laid comparatively slight stress on the business of selling. That policy is no more.

Greater part of the day, distributors spent hearing Norge executives tell how they have sharpened a great knife with which they hope to cut in 1934 the largest slice of household refrigeration business in the company's history.

What Norge chiefs call their "great knife" is an intensive, year-long merchandising and sales promotion campaign, coupled with an advertising program which will call for expenditure of more than $1,000,000 during 1934.

Early in the morning meeting, the visitors were shown advance models of the household refrigerators they will sell next year. As was the case

(*Concluded on Page 2, Column 1*)

UTILITY PROMOTION AIDS DEALERS' SALES

By Phil B. Redeker

JACKSON, Mich.—A coordinated activity instituted by the Consumers Power Co. to aid dealers in the sale of electrical appliances, particularly ranges and water heaters, has resulted in more activity and sales on the retailer's part, and has served to increase the dealers' respect for the utility, which serves practically all the lower peninsula of Michigan with the exception of the Detroit metropolitan area.

One distributor for electric ranges in this territory declares that its sales of electric ranges for the month of September (the activity was inaugurated Sept. 1) were greater than the total sales for the preceding eight months.

Dealers have been stimulated to greater sales activity through bonuses offered on the installation of ranges and water heaters on power lines of the Consumers Power Co. which will mean added revenue for the utility. If an electric range were to replace

(*Concluded on Page 10, Column 5*)

G-E WHOLESALE GROUP STUDIES SMALL TOWNS

CLEVELAND, Nov. 6.—Specialty Appliance Sales Department of the General Electric Co. opened its two-day Wholesale Managers' Conference at Nela Park here today with dealer operations, utility merchandising methods, and small-town selling plans the principal subjects for consideration.

P. B. Zimmerman, general manager of the Specialty Appliance Sales Department, was scheduled to open the program, taking as his subject "What To Do For 1934."

"Today's Dealer Operations," is to be discussed by A. A. Uhalt, head of the dealer division of the Specialty Appliance Sales Department. Turner Barger of Bard-Barger, Columbus distributor, will tell how successful selling can be carried on in small towns.

H. H. Bosworth, head of the public utility division of the Specialty Appliance Sales Department, is to speak on

(*Concluded on Page 2, Column 5*)

Comprehensive Merchandising Program Planned by Norge

(Concluded from Page 1, Column 5)

this year, there will be two lines—one standard, one deluxe.

Styling of the standard line cabinets is quite a departure from the conventional lines of the 1933 standard models, and represents the greatest change in the 1934 Norge household refrigeration line.

No fundamental changes have been made in the refrigerating mechanism of the 1934 Norge, and only slight refinements are planned for cabinets of the deluxe line, President Blood told the men. Deluxe models will, however, be plentifully supplied with "gadgets."

First shipments of the '34 Norges will be made about the middle of January, at which time full details of the line will be carried in ELECTRIC REFRIGERATION NEWS.

Commercial Equipment

Tomorrow, the distributors will have their first view of a line of commercial compressors, designed and manufactured in Norge plants. The units range in size up to 1½ hp.

And before the four-day convention ends, there will be shown the 1934 Norge washer, appearance of which has been radically changed over that of the 1933 machine. Details on the commercial refrigerating units and the new washer will be published in next week's issue of the NEWS.

Interesting remarks in fire-eating John Knapp's introductory address were these:

"During the first 10 months of 1933, Norge has made 120 per cent of its sales volume for the entire year of 1932 (on household refrigerators).

"Refrigeration is out of the jobbing stage. We can't wait, nowadays, for our dealers to come in and buy. We've got to program, plan, and merchandise. The year 1934 offers Norge and the entire refrigeration industry the greatest opportunity in history."

Plant Improvements

As is customary at Norge distributor meetings, the much-loved C. D. "Donny" Donaven, secretary-treasurer, made a report on activities at the company's Detroit rollator factory and Muskegon cabinet and diversified products plant. Summarizing his remarks:

Seventy-five thousand dollars have been spent for new equipment for the rollator plant's operations next year. Expenditure of approximately $70,000 is being made for new machinery at the cabinet plant, and $150,000 has been expended for equipment to be used in manufacture of products other than household refrigerators.

He attempted to make one fact crystal clear to the distributors—that with material costs mounting constantly, "overnight price changes" will probably be the rule rather than the exception in 1934.

Survey of Sales Appeals

Then John Knapp launched into the important business of the day—talking about advertising, sales promotion, sales planning, and sales analyzing next year.

"We wanted to find out just exactly why folks buy Norge refrigerators," he said, "so we asked 2,965 Norge dealers. This was their answer: First, the rollator; second, styling; third, economy of operation. And price, gentlemen, was seventh.

"So this year's advertising will use the rollator and economy of operation as its theme."

When he told the distributors what the company's 1934 advertising plans are, the men reacted with a muffled "Whew!" The plans were outlined by Mr. Knapp as follows:

National Advertising

"We will have a national magazine and trade paper campaign, and a national newspaper campaign—copy for the latter to be placed when and where we desire. It will be placed on a lineage-coverage basis, not on a basis of a distributor's sales in a given territory.

"We will also establish a fund for cooperative advertising in key city newspapers. We will spend our share on advertising in your key city papers —*provided* you show us that you or your dealers have spent *your* share for advertising, using factory or factory-approved copy."

Advertising Studies

Next speaker was Walter Seiler, executive vice president of Cramer-Krasselt Co., Norge advertising agency in Milwaukee. He explained how the findings of recent advertising studies will be used in preparing 1934 Norge advertisements.

"Advertising is not a reward for sales made," he asserted. "It is to assist in making sales. You can't expect to grow May flowers by sending your April showers in June. You've got to send your showers *first*, if you want a good crop of flowers.

"So next year, we'll send out our April advertising showers far enough ahead to bring May sales."

The 1934 Norge national advertising schedule, as now planned, contemplates monthly use of several national magazines.

"Many families," said Mr. Seiler, "decide to buy a refrigerator six to eight months before exposing themselves to a salesman. So by advertising throughout the entire year, we can reach them while they are making that decision.

"Our newspaper campaign will be more seasonal in nature, and will be used to increase selling stress at the most advantageous times in various sections of the country.

"During all of 1934, we will fit the theme to the times. We will highspot the economy appeal pretty consistently, but in winter, will play up the 'fear angle' (food spoilage even in cold months)."

The agency will prepare some copy stressing prices, terms, and free trials for use in cooperative advertising when the dealers prefer that type of copy.

Closing remarks by Mr. Seiler: "Conditions will be good in 1934, because the people whose incomes are being restored are good spenders. They will buy electric refrigerators."

Sales Promotion Plans

James A. Sterling, advertising and sales promotion manager of Norge Corp., gave the distributors an outline of the company's 1934 sales promotion plans, and pointed out that the entire program is to be based on facts—findings of surveys and market studies already made and to be made.

"The year will be divided into four seasons," Mr. Sterling explained, "and with each new season, there will be an appropriate and intensive promotional campaign.

"Each distributor will receive a book, prepared at the factory and based on our market research, which outlines in detail how his promotion activities should be organized. Recommendations will be made according to the needs and conditions in that particular territory. The book will show him exactly where he should apply extra effort, and how his promotion may be dovetailed with our national programs.

"Every dealer will also receive a book, informing him of proposed national advertising and promotional activities, and illustrating how he may plan his own program to secure the greatest good from the nation-wide drive."

During the coming year, Mr. Sterling notified the distributors, the factory will furnish all standard promotional literature free of charge. In every refrigerator sent from the factory, there will be a packet of literature designed to secure buyers for that unit.

For Norge salesmen, there will be issued a series of 24 sales lessons—each stressing one sales point—Mr. Sterling said.

All distributors at the afternoon session showed particular interest in the presentation of results of a market study just made for Norge Corp. by its advertising agency. Jerry Stedman, Cramer-Krasselt's vice president in charge of market planning, showed and explained the graphs, which illustrate Norge's standing in the industry, in a number of ways.

Lower Income Bracket

Concluding the afternoon meeting was a short and snappy address by Mr. Knapp, who based his remarks on facts revealed by the market analysis. These are some of his remarks:

"From now on, we've got to work harder and harder to sell to people whose incomes are $2,000 or less per year, and to people in small towns. Of all the wage earners in this country, 86.1 per cent are in the income bracket just named.

"We of the refrigeration industry haven't even come close to saturating the market. We still have to sell another 5,000,000 refrigerators before we've even equalled the washing machine saturation point today.

"Small towns present our greatest chance to do things this next year. Half the people in the United States live in towns of 10,000 or less. And in 1934, we've got to do more outside selling. Most of our sales next year should be made by men in the field—not men behind a counter."

Convention Attendance

Those in attendance at the four-day convention include:

Howard Avery, Detroit; Fred Adams, Waterloo, Iowa; F. Aumueller, Milwaukee; L. L. Andrews, Baltimore; W. Arthur, New York City; M. Amstater, El Paso, Tex. H. A. Barnard, Oklahoma City; A. E. Bottenfield, St. Louis, Mo.; J. M. Bloch, Indianapolis; J. R. Butler, New York City; J. R. Blocher, New York City; F. Bohne, Philadelphia; David Burke, Detroit; C. Baker, Muskegon, Mich.; W. Bergman, Buffalo; George Borge, Chicago.

J. B. Cabell, Jackson, Miss.; Ellis Chaney, San Antonio, Tex.; A. H. Crow, St. Louis, Mo.; T. W. Carlisle, Cleveland; S. P. Cornick, Richmond, Va.; J. Cohen, Philadelphia; Lee Cox, Seattle; T. B. Cabell, Jackson, Miss.; F. G. Cramer, Milwaukee; W. H. Crawford, Cleveland.

R. E. Densmore, Chicago; A. N. Delzeith, Chicago; (Chef) Davis, Chicago; J. A. Drake, Detroit; Ralph DeLoid, Boston; Paul Davis, Chicago; C. S. Davis, Chicago.

W. W. Evans, Little Rock, Ark.; W. M. Ewing, Birmingham, Ala.; J. N. Ewing, Pittsburgh; C. X. Engle, Muskegon, Mich.; Leo Eskin, Boston; Eskildson, Seattle; C. W. Faude, Milwaukee; S. M. Fucich, New Orleans; H. Finn, Boston.

E. M. Gass, Indianapolis; Phillip Gross, Milwaukee; S. Griselle, Philadelphia; W. Gambill, Jr., Nashville, Tenn.; B. D. Greenhouse, Chicago; E. Graham.

R. A. Harding, Salt Lake City; R. P. Harten, Cincinnati; Reagen, Houston, San Antonio, Tex.; Major J. E. Hahn, Toronto, Ont.; Frank Hughes, New York City; W. D. V. Hopkins, Atlanta; E. Henley, Birmingham, Ala.; T. P. Hallock, Jacksonville, Fla.; Ludwig Hommel, Pittsburgh.

S. L. and R. C. Ingersoll, Chicago; M. Keck, Chicago; W. G. Krasselt, Milwaukee; Harry Knodel, Cincinnati.

M. Lintner, Columbus, Ohio; O. I. Larsen, Chicago; E. Lovegren, Chicago; S. J. Levy, Buffalo; J. Lobel, Philadelphia; Geo. Lehleitner, New Orleans; M. Levy, Chicago.

Dan Moser, Kansas City, Mo.; John T. Morgan, Charleston, W. Va.; Herbert Morley, Muskegon, Mich.; Henry Mueller, Milwaukee; Treff Maloney, Boston; Harry Montague, Philadelphia; T. F. McIntyre, Philadelphia; Verne Miller, Portland, Ore.; L. R. McDowell, Washington, D. C.; A. H. Meyer, San Francisco; W. H. McKiggan, Detroit; L. H. Miller, Muskegon, Mich.

French Nestor, Jacksonville, Fla.; Glen O'Harra, New York City; J. E. Oliphant, Marion, Ohio; B. Oppenheim, Newark.

I. H. Parks, Denver; R. H. Penick, Houston, Tex.; C. B. Peck, Charleston, W. Va.; Ted Pockman, New York City; Geo. Pizarro, Los Angeles.

Marquis Reagon; F. B. Reed, Hastings, Nebr.; W. C. Rowles, Detroit; Ira Reindel, Detroit; H. N. Reagan, Milwaukee; A. C. Reinhard, Minneapolis; J. N. Rosenthal, Chicago; E. Robertson, Jr., Charleston, W. Va.; J. E. Ramsey, Jackson, Miss.; E. Rosethal.

E. E. Steves, Indianapolis; W. J. Schnelle, Dallas, Tex.; J. G. Suor, Kansas City, Mo.; Harold Smithers, Omaha; Milton Schwanberg, Milwaukee; G. E. Stedman, Milwaukee; W. G. Steele, Birmingham, Ala.; B. H. Spinney, Springfield, Mass.; P. A. Seaton, Richmond, Va.; Peter Sues, San Francisco; I. H. Stauffer, New Orleans; A. K. Sutton, Charlotte, N. C.; Peter Sampson, Chicago; H. L. Spencer, Detroit; A. W. Seiler, Milwaukee; G. A. Shallberg, Moline, Ill.

M. S. Tinsley, Kansas City, Mo.; J. M. Tenney, New York City; D. M. Trilling, Philadelphia; Harry Terry, Milwaukee; N. D. Vestal, Minneapolis.

Walsh, Des Moines, Iowa; C. L. Walling, Kansas City, Mo.; Willard M. Wood, Houston, Tex.; J. L. Willenbrink, Louisville; C. L. Watkins, Detroit; J. W. Webb, Muskegon, Mich.; J. G. Waddel, Boston; H. L. Wynogar, New York City; C. H. Wilson, Cleveland; Zenker, Los Angeles.

John Beukema, Glen Currey, Carl Damm, Frank Doud, Ernest Eimer, Paul Elliott, J. J. Gillard, E. Lorenz, and W. W. Richards, all of Muskegon, Mich.

Wholesale Managers of G-E in Conference

(Concluded from Page 1, Column 5)

present-day utility merchandising methods. Utility merchandising plans which have been used in Pennsylvania, Alabama, and New York will be discussed by J. A. Rafferty of Philadelphia, Gordon Smith of Birmingham, and W. M. Page of Schenectady.

How to get a territory "range minded" will be explained by J. R. Poteat, manager of range sales. W. E. Landmesser, manager of the commercial refrigeration division, will speak on "Selling Commercial in Non-Urban Areas." Walter J. Daily, manager of advertising and sales promotion, is to speak on "Reaching the 1934 Pocketbook."

T. K. Quinn, vice president of the General Electric Co., will sum up the meeting in the last speech of the conference.

DETROIT LUBRICATOR CO. LICENSED BY LEWIS

(Concluded from Page 1, Column 2)

ture adequate for efficient evaporation, Lewis engineers state.

The same patent further relates to operation of the air-circulating fan, where the fan is controlled by a thermostat and rendered operative only when the air has attained a predetermined temperature.

"The Franchise Comparison Chart PROVED that I could make more money with Westinghouse"

● Let's come right to the point. *You* want to make money selling electric refrigerators. *We* feel that the Westinghouse franchise gives you the *best* opportunity for volume, net profit, and lifetime customer satisfaction . . . that the Westinghouse proposition offers you the finest product line, the greatest prestige, and the best selling plans and equipment.

Will you give us the opportunity to prove it? There's a new, simplified way by which you can compare the facts. Send NOW for the FRANCHISE COMPARISON CHART, which gives you at a glance every important question to consider in selecting a money-making refrigeration proposition . . . supplies the Westinghouse answers . . . and permits you to compare these answers with those of others. The final score will tell our story . . . better than we could tell it ourselves.

The Franchise Comparison Chart is offered to you without cost or obligation. Why not send for it now . . . on the coupon below or your own letterhead? It's well worth the few minutes it will take to study.

GET YOUR COPY NOW! *mail coupon*

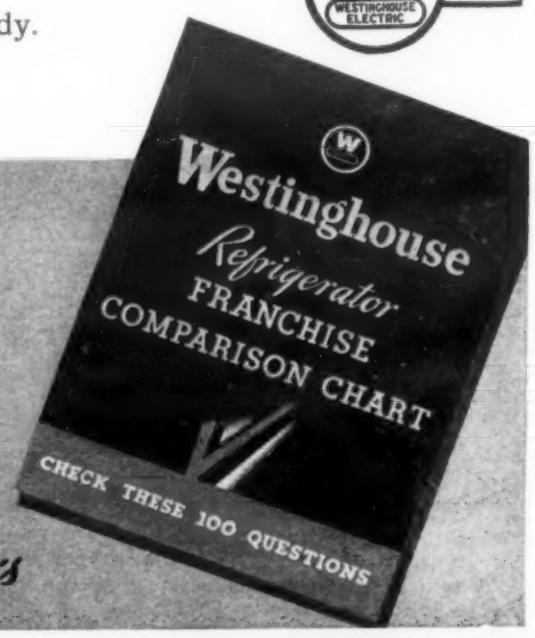
Westinghouse Electric & Mfg. Co.
Refrigeration Dept. (ERN 11-8)
Mansfield, Ohio

Send me a copy of the Franchise Comparison Chart. I understand that it costs nothing and puts me under no obligation.

Name .....

Address .....

City ..... State .....



Westinghouse *Dual-automatic Refrigerators*

BY GEORGE F. TAUBENECK - - -

Stewart-Warner And Time

F. M. COCKRELL is fond of telling stories to illustrate the importance of Time—the Right Time and the Wrong Time—in human affairs. *Carpe diem*, the old Roman equivalent of "Grasp the psychological moment," might be his favorite motto.

Mr. Cockrell should nod with a smile, then, at the fortuitous situation in which the new executives of Stewart-Warner find themselves. They have chosen, it would seem, a highly favorable moment for making a serious bid for a fair share of the electric refrigeration business.

In 1932 everybody and his brother Herman were going into the refrigeration business. In 1933 the rush to get out has been almost as pell mell.

A year ago the major manufacturers were chaffing over the inroads made into their business by dozens of "small fry" and hordes of "fly-by-nights." At the present writing the Big Shots of the Industry are letting out their belts another notch and noting with satisfaction that practically *all* of the business during the industry's best year has been divided up among a very few leaders.

What a moment for an old-line house with a nationally known name and plenty of money in the sock to enter the picture!

Practically every one of the companies which did a fade-out this year had one, two, or maybe half a dozen really first-rate distributors — who have been left hanging out on a limb. They should be ripe for picking by a concern which, to all intents and purposes, is set to stay in the business for a long, long time.

* * *

Otis and Hiter

Stewart-Warner, of course, has been in the refrigeration business for quite a while. But only in an apologetic fashion. Why all the new spirit and ambition? The answer is:

OTIS and HITER.

Now who in the Hell, you may be asking, are Otis and Hiter? That's what we wanted to know—after reading the advertisements they have been running recently in ELECTRIC REFRIGERATION NEWS. So we went over to visit 'em and find out (had met them only casually before).

* * *

The Alemite Boys

The answer is: Otis and Hiter are the men who built the famous Alemite (automobile lubricants) distributing organization. Alemite, since 1925, has been a part of Stewart-Warner Corp. And since the depression, it has been about the only division of that big concern which has made money.

So-o-o-o, the Alemite boys are now in charge of *all* Stewart-Warner operations—automotive supplies and accessories, radios, talking picture and home movie equipment, household electric refrigerators, et cetera.

With them is their entire Alemite executive staff, including FRED CROSS, straight-thinking advertising manager. To head their refrigeration managership they lifted CHARLES D'OLIVE from his scarcely-warm chair in the Mayflower sales manager's office, and put him to work. He was an old friend, and fit right into the official family.

"Just like yesterday," it seems to them, the Alemite boys were referring to themselves as a young men's organization. Today, grown old in the service, they're still young—most of them in their late thirties or early forties. Young enough to have drive; yet experienced enough to know the "outs" to almost any proposition put up to them.

Now who are these men, as individuals?

He Gets Things Done

Frank A. Hiter, Stewart-Warner's energetic vice president in charge of sales, is noted for pushing his projects through to successful completion.

Joseph E. Otis, Jr.

Member of one of Chicago's oldest, wealthiest, and most socially prominent families, JOSEPH E. OTIS, JR., new president and general manager of Stewart-Warner, would much rather unravel a knotty business problem than ride to the hounds.

He is quite a Chicago clubman. He is a graduate of Yale. His father is one of Chicago's most respected bankers. Yet Mr. Otis is as democratic and easy to get along with as a comfortable shoe.

Around the plant, among the machine-tenders and laborers, he is extraordinarily popular. That's unusual, for a man of his station and situation in life.

Know what he likes to do for recreation? Hunt! Which should give you a clue to the nature of his personality.

Some 11 years ago he joined Alemite as assistant to the general manager. Previously he had been with Union Carbide and Carbon.

When Alemite stock was listed on the Big Board in 1923 Mr. Otis became general manager. He continued in this capacity when, two years later, Alemite was absorbed by Stewart-Warner. Last spring he became general manager of the entire Stewart-Warner organization.

He is an exceedingly hard worker, and is a man who combines the broad vision of a Man of Finance, accustomed to thinking in large terms, with the practical grip on every-day problems of the Man at the Bench.

* * *

Frank A. Hiter

Tall, rough-hewn, with a touch of the sportsman in his clothes and his manner, FRANK HITER, inspires confidence from Moment No. 1 on as long as you know him.

He has a strong, resonant voice, thinks fast, and talks well. Looks directly at you, speaks frankly and engagingly, appears wholeheartedly sincere at all times. You'd like him. And admire and respect him, too.

Fourteen years he has been with Alemite. Ten years of that time he has been sales manager. Last spring he assumed entire responsibility for the merchandising of all Stewart-Warner products.

Mr. Hiter learned his ABC's of selling as Kentucky distributor for the old American Underslung automobile. Later he was distributor in that territory for Henderson motor cars. Any of you old-timers remember those buggies?

Then came the war. He was a "top kick" in the field artillery.

Returning after demobilization, Mr. Hiter was named Chicago branch manager for the Thompson Automotive Supply Co., which had, as its star product, graphite penetrating oil for automotive lubrication.

He was successful in conducting and completing negotiations with the Alemite Corp. for the exclusive sales rights to penetrating oil. After Alemite had obtained the distribution rights, they decided they had better retain Mr. Hiter for awhile to show them what to do with their new baby.

Sr. Mr. Hiter was hired by Alemite on a temporary basis. He has been there ever since.

Like Mr. Otis, Mr. Hiter is in his early forties. He, too, likes hunting. And dogs and horses. Pictures of these latter adorn his office.

Right now his hobby is seeing his plans work out. Plans a Florida vacation this winter, though.

* * *

Fred Cross

Like Messrs. Otis and Hiter, FRED CROSS is an old-young Alemite executive who has been given full authority over all Stewart-Warner products.

He joined Alemite in 1924 as assistant advertising manager, and a year later was promoted to the post of Alemite advertising manager. In May of this year he became advertising manager of the Stewart-Warner Corp.

Previous to his Alemite-Stewart-Warner experience, Mr. Cross had been in the sales department of Procter and Gamble for three years. In 1919-20 he was with Addressograph.

During the war he was a first lieutenant in the balloon service of the Field Artillery.

He is a graduate of Kenyon College, and a member of Alpha Delta Phi.

Mr. Cross is perhaps the handsomest man in the Stewart-Warner organization, and certainly one of the most talented, too. He's an artist, for instance — but the most level-headed artist you ever saw.

For a long time he seriously considered making painting his life work. After the war, however, merchandising and advertising captured his attention and interest so completely that art became merely his hobby. But what a hobby!

Mr. Cross's specialty is something we'd never even heard of before—and we'll bet that goes for you, too. It's called "four-edge" painting.

What is "four-edge" painting? Damned if we know. But we'll try to illustrate:

Mr. Cross will show you a book. Its paper edges are gold tinted. Then he flexes the book, so that the paper edges slope to the left at a 45° angle, instead of remaining vertical. And lo! There on the slanted paper-edges is a full-blown picture! Let the book fall back to normal, and again the paper-edges are simply gold-tinted, with no hint of the picture they are hiding with such a poker face.

Somehow it reminded us, irreverently, of the sailor who had a rowboat tatooed on his chest. But such was the chest development of this Jack Tar that when he inhaled deeply, the rowboat became a full-rigged, three-masted schooner, with all sails flying.

* * *

Charles D'Olive

On the wall behind the desk in his office, CHARLES D'OLIVE (pronounced: "daleev") has a brass Indian-head emblem. A friend of his cast it in image of the emblem which Mr. D'Olive carried on the plane he flew during the war. Four beads on this emblem indicate that he bagged four enemy planes.

Mr. D'Olive has the calm and the far-away look of the flyer. And he has an apparently inexhaustible fund of anecdotes about air adventure of which this writer, for one, never gets tired.

Following the war he entered Underwriters' Laboratories, where he remained four years, and where he worked himself up into the position of superintendent of label service.

Then he went to Dayton as assistant to the general manager of a fire protection equipment factory, after which he was made general manager of Thomas and Hochwalt chemical research laboratories in Dayton.

Trupar, another Dayton firm, then sought his services, and put him in charge of the eastern territory for Mayflower refrigeration products. Last spring he was called back to Dayton to become sales manager of Mayflower.

And, before he could recover his breath, he was hired by the new management of Stewart-Warner as manager of their refrigeration division.

A graduate of Mississippi A. and M., class of 1916, Mr. D'Olive is a good engineer. Understands manufacturing operations from A to Izzard. Is a good business man.

In addition to all this, his field experience with Trupar has equipped him with a voluminous knowledge of refrigeration merchandising. Being of an analytical type of mind, and observing, he has catalogued in his mind the methods and experiences of most of his competitors, and why they have or have not been successful.

As we listen to him talk about his plans for promoting the new Stewart-Warner refrigerators, we are always impressed with the fact that he seems to know all of the "outs" to refrigeration merchandising. He has seen most of the pitfalls, and is steering a sober, cautious course.

Don't expect any great splurging from Stewart-Warner. They'll be happy with a volume of from 25,000 to 40,000. That, however, compared to the refrigerator volume of past years, would be a remarkable increase.

But put this down: Stewart-Warner is definitely headed toward a seat among the mighty.

They have the money, the background, the talent, the ambition, and the will to get somewhere, and confidently expect to be a real factor in the refrigeration business within the next couple of years.

* * *

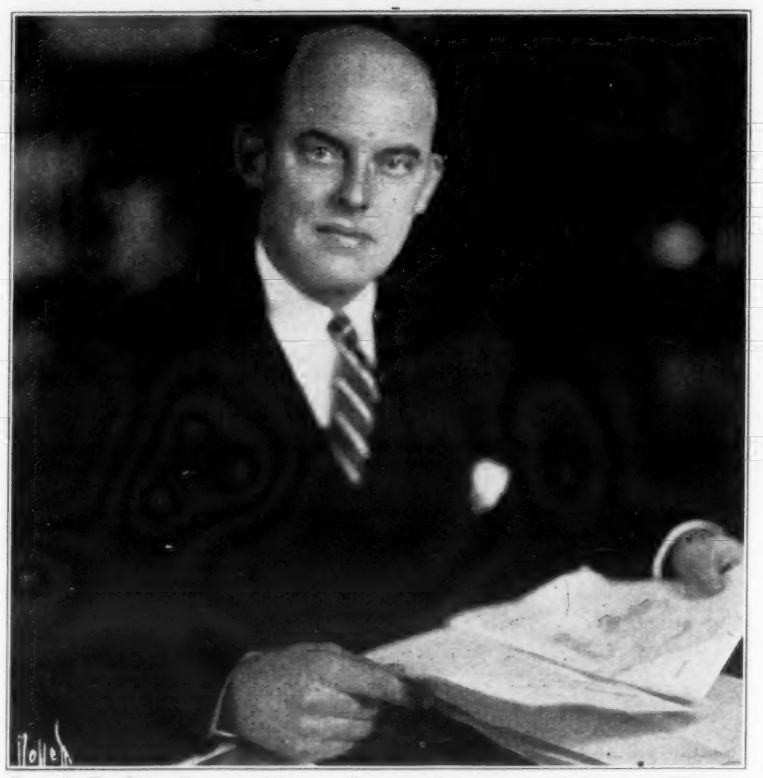
Peeled Eye Dept.

In the picture, "Rafter Romance," GINGER ROGERS plays the role of a Frigidaire (called "Icyaire" in the picture) saleswoman.

Shots in the picture showing her at work were obviously taken in a Frigidaire salesroom. Handsome super series Frigidaires are ranged hither and yon; on the walls are Frigidaire compressor assembly displays, and you see such unmistakeable advertising phases as "super power."

Yet, when Ginger puts up a strong story to a supposed prospect, she reads from a piece of literature on which are several illustrations of Monitor Top refrigerators. And she calls out the specifications of a G-E HX-70.

They All Like Him



Joseph E. Otis, Jr., president and general manager of Stewart-Warner, is the type of chief executive who is personally popular in the shop.

Stewart-Warner Officials Read Electric Refrigeration News 'On Arrival'

When the weekly issue of Electric Refrigeration News arrives in the Stewart-Warner offices in Chicago, all hands cease activities temporarily until they have digested the official record of the week's happenings in the refrigeration world. Arriving at the Stewart-Warner plant the same day with the News, our photographer caught these executives (left to right): Charles D'Olive, manager of the refrigeration division; Fred Cross, advertising manager; A. B. Dicus, assistant advertising manager; George License, service division; and R. S. Brunhouse, field man.

HE SCRAPPED *EVERYTHING BUT EXPERIENCE*

TO CREATE THE ONLY

100% NEW RADIO!

W. C. GRUNOW Leads the Return to Quality and Dealer Profits with the MIRACLE OF LIVING TONE..

Amazing Self-tuning Si-Lec-Trol Featured in Sensational Line with More Improvements Than Any Other Radio

AGAIN W. C. Grunow, America's most spectacular radio genius, lifts radio from the commonplace . . . leads the trend in radio back to quality . . . and restores the glamour and thrill that brought a harvest of profits to the nation's dealers a few years ago!

Discarding everything but experience, this wizard of radio has created the *only 100% new radio!* With no old parts to salvage, no old methods or machinery to force a compromise in a single detail of his new masterpieces, he has been free to apply every advancement known to science . . . to carry radio 10 years ahead in a single, revolutionary stride!

In the 10 beautiful models included in the new Grunow line, more actual new developments are included than in any other radios among this season's offering. They're improvements you can demonstrate . . . that the buyer can *see and hear and feel* . . . that give *newness* and *appeal* radio has lacked since Mr. Grunow left radio at its sales peak. These amazing radios feature:

The GRUNOW NAME . . . *synonymous in the public mind with all that's best in value and performance.*

Grunow LIVING TONE . . . *a revelation in reality that frees radio at last from the last taint of mechanical harshness. The combined result of a score of new, exclusive improvements that create "radio that actually lives"!*

Grunow SI-LEC-TROL . . . *so simple a blindfolded child can use it. Selects favorite stations at a touch . . . without between-station noise. You hear nothing until the station flashes in, tuned to hairline precision.*

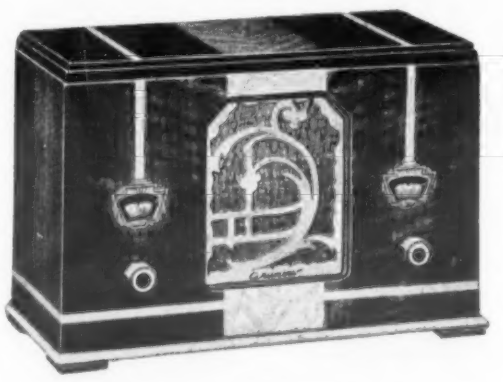
Grunow JEWEL BOX REMOTE CONTROL . . . *the first genuine "distant dial" . . . with full command of* every *station carried right to the listener's easy chair.*

Grunow's NEW Automatic *Volume Control,* NEW *Synchrodynamic Speaker,* NEW *Automatic Tone Compensator and other genuine improvements . . . give performance new to radio.*

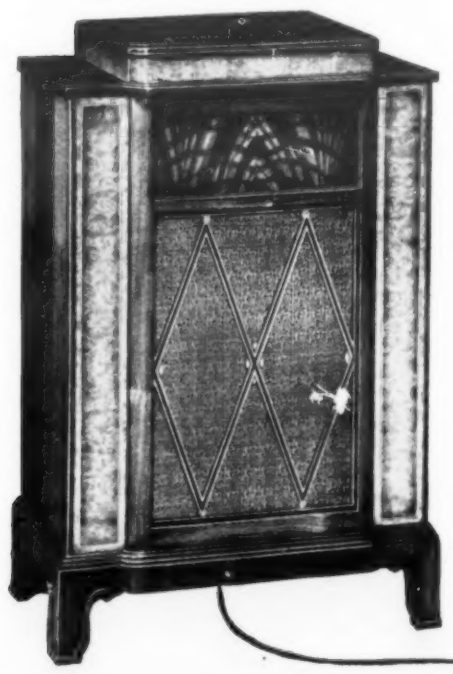
In your showroom, these astounding new Grunows will supply selling punch, buying appeal . . . PROFITS . . . that you lack now. Everything the buyer wants . . . the price range, the choice of styles, the definite and provable perfection missing in present-day radios . . . is here. Phone or wire your Grunow distributor now for complete franchise information.

GENERAL HOUSEHOLD UTILITIES CO.
2650 North Crawford Avenue, Chicago, Illinois

GRUNOW CONSOLE MODEL 701—*Matched butt walnut and burl maple, with genuine tulipwood inlays. 7 tubes with improved automatic volume control, 2-range tuning to 3800 kc., automatic tone compensator, stepless tone control, 10-inch synchrodynamic speaker, and illuminated controls.*



GRUNOW AC-DC MODEL 501—*5-tube superheterodyne with improved automatic volume control, pentode power tube, 6-inch synchrodynamic speaker and illuminated controls. Modern cabinet has matched butt walnut front panel with satinwood inlay and burl maple overlay.*



GRUNOW CONSOLE MODEL 1101 *with Jewel Box Remote Control and Si-Lec-Trol. 11-tube receiver with 12-inch synchrodynamic speaker, push-pull-parallel second power stage and all other Grunow improvements. Remote control cabinet of imported matched faux-satine and burl maple. Console of matched faux-satine, burl maple, olive burl and walnut, with tulipwood inlays.*

Grunow

THE MODERN MIRACLE OF RADIO

STATISTICS

1933 Will Set New Sales Record for Household Electric Refrigerators

DETROIT—Sales of household electric refrigerators by member companies of the Refrigeration Division of the National Electrical Manufacturers' Association held up well during September and confirmed the opinion that 1933 will become the record year in refrigeration sales history.

During September 60,840 household units were sold by 11 member companies including Crosley, Frigidaire, General Electric, Gibson, Grigsby-Grunow, Kelvinator, Norge, Servel, Trupar, Universal Cooler, and Westinghouse, bringing Nema total sales for the first three quarters of 1933 to 804,863 units.

Although only three quarters of the current year have passed household refrigerator sales have already exceeded the record of 802,356 units established by Nema companies in 1931 which was the previous high sales year.

In the following analysis Mr. Louis Ruthenburg, consultant to the Nema Refrigeration Division, summarizes the Nema September statistics:

Household unit shipments for September are almost exactly double those for the same month last year, and are materially higher than unit shipments for September, 1931.

Household unit shipments for the year to date indicate that the industry's total for the calendar year will be well in excess of a million units, and the cumulative figure not only is one-third higher than unit shipments for the same period last year, but is 15.6% ahead of unit shipments in 1931, the previous record year.

Dollar sales for September are 72.74% ahead of dollar sales for September, 1932, and 8.06% below dollar sales for the same month in 1931.

Cumulative dollar sales for the year to date are 8.11% ahead of those for last year, and 26.24% below those of the same period in 1931.

Average unit price declined as compared with average unit price in August, but is slightly ahead of the average unit price for the year to date. It is 13.36% lower than the average unit price for the same month last year, and 33.11% below average unit price for September, 1931.

Average unit price for the year to date is $82.67 as compared with $102.42 for the same period last year, and $129.56 in 1931. On the basis of these averages, unit price is 19.28% below that of 1932 and 36.19% below average unit price in 1931.

Commercial unit sales for September are 16.21% ahead of those of September, 1932, and 26.71% below those of 1931. For the year to date, Nema members have shipped 6.3% less commercial units than in the corresponding period last year, and 46.53% less than in the same period in 1931.

The dollar value of commercial sales is less than one-half of 1% above those for the same month last year, and is 31.37% below dollar sales for September, 1931.

Cumulative dollar sales for the year to date show a decline of 28.75% as compared with the same period last year, and a decline of 58.78% as compared with the corresponding period in 1931.

Average unit price for commercial equipment is above that of the previous month and is well above the cumulative average. Commercial unit prices are 13.56% below those for the same month last year, and 6.35% below those obtained in September, 1931.

Average unit price for the year to date is 23.96% less than average unit price for the same period last year, and 22.9% below average unit price for the corresponding period in 1931.

When normal seasonal tendencies are considered in conjunction with current general business conditions, the September showing of the refrigeration industry is distinctly encouraging.

September, 1933, sale of household refrigerators to distributors and dealers in terms of units represents an advance of 99.39% over corresponding sales in September, 1932. In terms of dollars, the advance is 72.74%.

It will be noted that while unit sales doubled in September, 1933, as compared with September, 1932, dollar sales increased only 72.74%, and that the industry sold 37.45% more units in September, 1933, to produce 8.06% less gross revenue than was the case in September, 1931.

The plain fact is that since sharp price reductions were made in the spring of 1932, the industry as a whole has not operated on a sound basis, and until upward revisions are made to correct fundamentally unsound price structures with proper consideration for recently advanced material and labor costs, no sales volume reasonably to be anticipated will result in generally profitable operations.

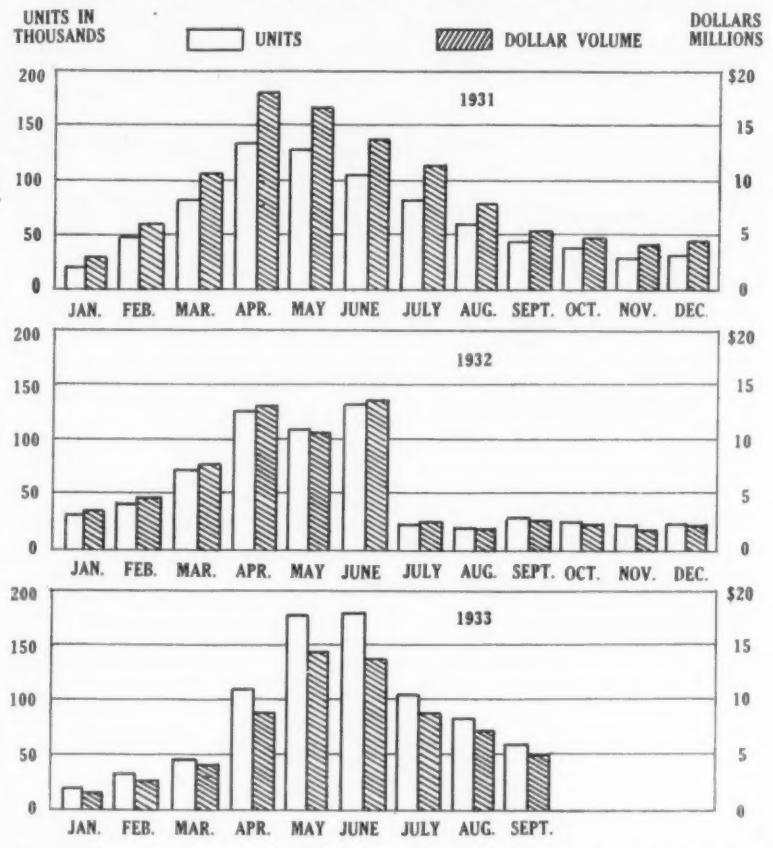
Sales to Distributors and Dealers

September, 1933 HOUSEHOLD	Current Month	Same Month 1932	Same Month 1931	% Change 1932	% Change 1931	Year to Date	Same Period 1932	Same Period 1931	% Change 1932	% Change 1931
Units	60,840	30,513	44,262	99.39	37.45	803,412	599,857	695,019	33.93	15.60
Dollars	$5,067,254	$2,933,435	$5,511,450	72.74	-8.06	$66,415,239	$61,435,455	$90,045,706	8.11	-26.24
Average Unit Price September, 1933	$ 83.29	$ 96.14	$ 124.52	-13.36	-33.11	$ 82.67	$ 102.42	$ 129.56	-19.28	-36.19
COMMERCIAL										
Units	5,906	5,082	8,059	16.21	-26.71	78,657	83,942	147,106	-6.30	-46.53
Dollars	$ 721,160	$ 717,942	$1,050,783	.45	-31.37	$ 9,108,482	$12,783,939	$22,095,828	-28.75	-58.78
Average Unit Price	$ 122.11	$ 141.27	$ 130.39	-13.56	-6.35	$ 115.80	$ 152.29	$ 150.20	-23.96	-22.90

COMPARISON OF QUARTERLY SALES OF HOUSEHOLD ELECTRIC REFRIGERATORS BY NEMA MEMBER COMPANIES

Period	1930	1931	1932	1933
First Quarter	141,009	144,740	146,851	96,596
Second Quarter	276,295	361,577	372,575	457,851
Third Quarter	181,155	188,702	80,431	250,416
Nine Months Total	598,459	695,019	599,857	804,863

Chart I
Household Refrigerator Sales by Months

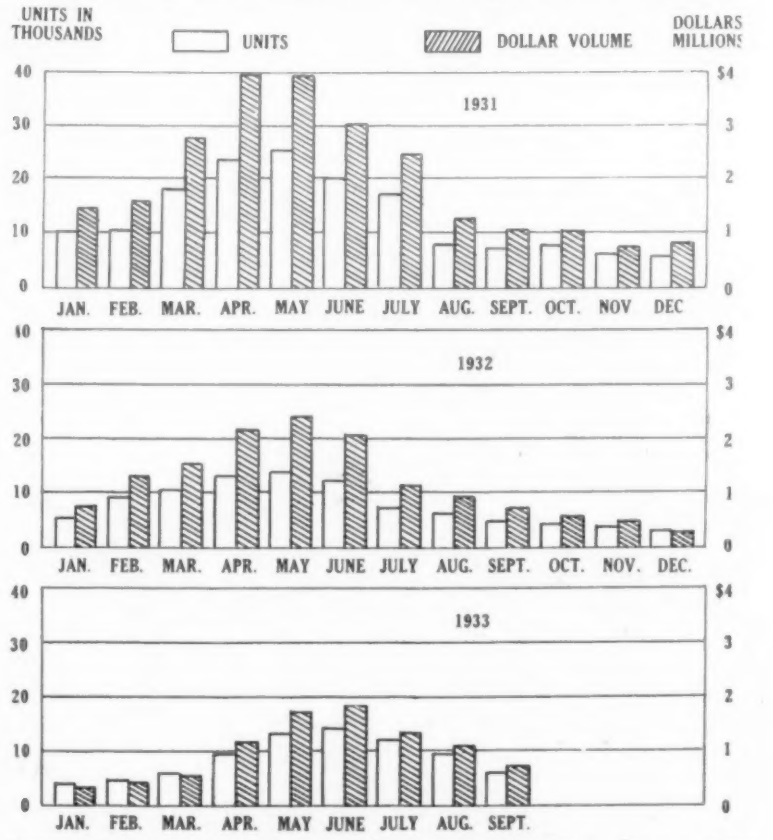


The decline in September household sales as compared with those in August may, in the light of past experience, be regarded as a normal seasonal decline and does not represent a sharp reaction which might have been anticipated after the unusually heavy sales in the early months of the season.

A new high record undoubtedly will be established this year for the sale of household units.

Unit household sales through September amount to 803,412, which may be compared with the total unit production of 1931 in the amount of 965,000 units.

Chart II
Monthly Commercial Refrigeration Sales



Unit commercial sales for September declined 37.5% from August, but are 16.21% ahead of unit commercial sales for September, 1932.

Commercial dollar sales are 33.61% below August but .45% ahead of those for September, 1932.

FRIGIDAIRE LARGEST UNIT IN NRA PARADE

DAYTON — Factory and national headquarters office workers of Frigidaire Corp. formed the largest single group in the Dayton NRA parade recently.

More than 5,000 of Frigidaire's Dayton workers marched. The Frigidaire section was 16 blocks long and took more than 15 minutes to pass a given point.

A large float in the colors of NRA, indicating Frigidaire's membership and carrying four porcelain models led the contingent. Three military bands divided the forces into three divisions.

Other General Motors units participating followed Frigidaire. These were Delco Products Corp., Inland Mfg. Co., and Moraine Products, Inc.

Frigidaire participation in the demonstration was directed by Earl D. Doty, advertising manager, and A. D. Farrell, manager of displays and exhibits.

GRUNOW MODEL RUSHED BY 'PLANE TO MEETING

SALT LAKE CITY—It took an airplane to make a success of the dealer meeting held a fortnight ago by the Salt Lake Hardware Co., Grunow distributor here.

The meeting was scheduled for Oct. 28. At noon on Oct. 26, Charles L. Wheeler, the distributor's vice president, wired H. C. Bonfig, vice president of General Household Utilities Co. in Chicago, that a model 801 Grunow radio was needed for use at the meeting.

At 5 p. m. the same day, Mr. Bonfig placed the set in a Boeing twin-motor ship at Chicago's municipal airport, and wired Mr. Wheeler. At 2:20 a. m. on Oct. 27, the plane landed at the Salt Lake airport. That afternoon, the radio was on the stage, and Mr. Wheeler's letter of appreciation was in the mail.

HILL ORGANIZES FIRM TO DISTRIBUTE BRUNNER LINE

BROOKLYN — Organized to distribute Fluid Heat oil burners and Brunner refrigeration compressors here is Hileda Utilities, Inc., headed by Robert C. Hill, former sales manager of Allen-Ingraham, Inc., Westinghouse distributor in this territory.

Headquarters of the new organization are at 8 Lafayette Ave. At present, the management plans to open three additional salesrooms during the next few months.

L. Leayle is secretary-treasurer of the distributorship, and F. F. Dangard is vice president. Both were also associated with Allen-Ingraham in the past.

LEONARD FEATURED IN KLEIN STOVE CO. SIGN

PHILADELPHIA—Just erected on the Thirtieth St. viaduct here by the Klein Stove Co., Leonard distributor, is a 15x78-ft. semi-spectacular sign which advertises Leonard refrigerators and features the Len-A-Dor.

At one side of the display is a reproduction of a Leonard refrigerator which is 14 ft. high and 8 ft. wide. Door of the refrigerator is 7½ ft. high and 5 in. thick. Besides the refrigerator is the figure of a woman 14 ft. tall.

Tricky part of the board is the electrical device which opens and shuts the big refrigerator door every 15 seconds as the toe of the figure touches the Len-A-Dor pedal.

Sparton Refrigerators Shown in Chicago

CHICAGO—Sparton electric refrigerators had a prominent place in the Sparks-Withington exhibit at the Automotive Industries Show, held last week in the Merchandise Mart here.

This year's show was said to have been the largest ever held, and was sponsored by the Motor Equipment Manufacturers' Association, the National Standard Parts Association, and the Motor and Equipment Wholesalers' Association. Exhibits covered the entire second floor of the Merchandise Mart.

MERCHANDISE MART WILL HOLD FURNISHINGS SHOW

CHICAGO—An electrical appliance show will be one feature of a large exposition of home furnishings to be sponsored by the Merchandise Mart here from Jan 2 to 13, according to T. J. Reed, the mart's general manager. Besides appliances, there will be showings of furniture, floor coverings, lighting, glassware, pottery, and china.

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Registered U. S. Patent Office

The Newspaper of the Industry — Written to Be Read on Arrival

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EDITORIAL AIMS

To encourage the development of the art.
To promote ethical practices in the business.
To foster friendly relations throughout the industry.
To provide a clearing house for new methods and ideas.
To broadcast the technical, commercial, and personal news of the field.

VOL. 10, NO. 10, SERIAL NO. 242, NOVEMBER 8, 1933

NRA and Publicity

CRITICISM of the NRA movement is now being voiced in many quarters of this land of the free. Newspapers, fearful lest the precious freedom of the press be abridged in spite of the constitutional guarantee to the contrary, are protesting loudly.

"Rugged individualists" are having their say. Some entire industries are balking publicly; while not a few others are pursuing the Gandhi method of peaceful non-cooperation. Out in Iowa the embattled farmers are firing shots heard 'round the world.

Those who are inclined to be critical are basing their cries at present on the declaration that the scheme is not working. They point especially toward more difficult conditions for the farmer—low prices for his produce and still higher prices for the things he must buy. They point also to the securities markets, to the unemployment figures, and to various business indicators of a more general nature.

"Give It Time"

NRA officials may answer, and with a measure of justification, that the scheme hasn't been in operation long enough to be judged. It hasn't had a chance yet, they can argue; give it time.

But the government really left itself wide open to attacks of this nature when it instituted the Blue Eagle campaign, and when it made misguided attempts to copy the highly seasoned publicity methods which were employed to help win the war.

Such tremendously over-excited ballyhoo as was used under General Johnson's direction last summer could not fail to arouse too high expectations on the part of the general public. Torchlight parades, movie trailers, all-star radio broadcasts, posters, tons of printed matter—it was all rather undignified, and certainly guilty of overemphasis and overstuffing.

Ballyhoo Promised Too Much

And from the campaign and the hysteria it engendered, the public got the idea that the NRA was a species of Aladdin's lamp which would magically lift us out of the depression before it came time to lay in the winter's supply of coal. Which, of course, no plan, no matter how inspired, or how energetically pushed by a united nation, could hope to accomplish.

The fault, then, seems to lie not in the NRA so much as in the publicity methods employed. Take General Johnson, for instance, there's no doubt that the plain-and-often-spoken, rough-and-ready general has obtained lots of publicity. Too much of it, however, has been personal publicity. So incensed about that feature of it has George Peek (who, as head of the AAA has equal rank and importance with Johnson—but *who* has heard of him?) become that a serious split has occurred between the two, a split which is holding up and endangering the successful progress and administration of the New Deal.

No Match for Henry Ford

Johnson's tiff with Henry Ford is a case in point. Henry Ford has probably the smartest practical publicity mind in the country. For Johnson to tackle so redoubtable an antagonist was sheerest folly, as reaction to the tiff from press and public has proved. While Johnson was childishly trading his Lincoln in on a Cadillac (thereby calling attention to the fact that government officials do own Cadillacs and Lincolns), talking about "cracking down" on Ford, boycotting him, and seeking an excuse for court action against the Sage of Dearborn, Mr. Ford remained calm and unruffled, dignified and quiet. When the proper time came, he demonstrated that he had more than lived up to the statute, leaving NRA officials, still shouting and making faces, out on a precarious limb.

Public Dislikes Secrecy and Censorship

Hinting that there might be a muzzling of the press was also a wrong move. It immediately alienated almost the entire newspaper fraternity. Moreover, it made the public suspicious. If a thing cannot be brought out into the open and examined, if it must be hushed and kept dark and mysterious, there may be something the matter with it. At least, that's how the American public is likely to view it.

The blatant copying of a ballyhoo art developed for the World War in a situation which called for a different type of publicity not only aroused impossible hopes in the breasts of multitudes, but it offended the nostrils of sensitive and intelligent people. Bulldozing and behind-locked-doors boards of strategy have also helped turn the nation against a movement which undoubtedly deserves a fair trial.

What Mr. Roosevelt needs for his NRA, apparently, is a new publicity department. And possibly some new officials who understand the workings of public opinion. Rumor persists that the latter move, and possibly the former, will be made in the very near future.

WHAT OTHERS SAY

BUSINESS EDITORS AND THE NATIONAL RECOVERY ADMINISTRATION

IT is to be doubted if any governmental activity not launched in war time has had such enthusiastic support and encouragement as the business and industrial publications of the country have given the national recovery program and all that the NRA signifies. The general disposition to cooperate with the administration in the effort to win the objectives of increased consumer buying power, higher wages, and shorter hours has been reflected in the editorial support accorded by the industrial press.

During the past few months, when code-making has been the principal activity at Washington, and when the development of codes of trade practices involving almost every feature of business conduct, including marketing and promotion, has been the main business of every industry, it has been almost impossible to avoid the injection of controversial matters. Many of the proposals which have been made have run counter to some of the basic policies on which great industries have been erected.

Business editors have therefore undertaken, somewhat timidly at first, but with more confidence later, constructive discussion and criticism, not for the purpose of impeding the process of recovery, but to insure the adoption for their industries of codes which are sound from the standpoint of successful operation. This has resulted in some very frank and vigorous articles dealing with many of the aspects of codes and policies of the NRA.

At the annual convention of the Associated Business Papers, Inc., held in Chicago a few weeks ago, Earl L. Shaner, editor of *Steel*, and retiring president of the National Conference of Business Paper Editors, said that it has become evident to many of those in the field that this policy of constructive criticism was too long delayed, and that for the good of their industries, industrial editors should have become more outspoken in the earlier days of the recovery program, so as to prevent errors in policy from creeping into the situation.

Mr. Shaner's position in favor of frank discussion of the NRA and its implications seems to us to be sound. If the recovery plans are to be successful, they must be worked out in terms of practical operating conditions, which means that the "bugs" must be eliminated at the time that codes are being discussed. A business publication does less than its duty if it is deterred from criticism of current developments affecting its field, provided it has the facts and is qualified to interpret them.—*Class & Industrial Marketing* section of *Advertising Age*, Nov. 4.

LETTERS

Commission Salesmen And the NRA

Rice Sales & Service, Inc.
Household Appliances
Parts and Repairing
121 S. Ludlow St., Dayton
Nov. 4, 1933.

Editor:

We were very much interested in your editorial in the current issue of the NEWS, in regard to Commission Salesmen & the Retail Code. The question of whether an exclusive electrical appliance store such as ours, would have to guarantee the minimum wage to outside salesmen, who formerly worked on commission, is a very vital one.

There are several things that we cannot understand. One is how manufacturers' salesmen could be exempted. In other words, a factory branch across the street could hire as many salesmen as they liked on a commission basis with no guarantee, but the individual dealer would be prohibited from doing so. Since when is it possible in this land of ours to make one law for one person and a different law for another? I guess since the NRA.

It is also interesting to note that the entire group that drew up the retail code was composed of department store executives. Unfortunately, the appliance men have no organization and were unable to protect themselves. The life of the appliance store depends on its selling organization and they will be unable to exist if the manufacturers are able to develop their own selling force on such an unfair basis as the code provides.

It might be better if the large outside selling crews were discontinued but a lot of men will be thrown out of work which is just what the NRA is trying to avoid. Most of these men make less than the minimum wage but at that it is better than nothing at all, which is what they will get if this provision of the code is put into effect, unless the manufacturers take over the retail outlets.

HAROLD S. RICE.

Those St. Petersburg Stamps Again

Brooke, Smith & French, Inc.
52 E. Hancock, Detroit
Oct. 19, 1933.

Editor:

I have a word or two to contribute in connection with the recent correspondence between your office and the postal authorities of St. Petersburg (The Sunshine City), Fla.

Let me go on record at the outset as sympathizing with Postmaster Hall's honorable defense of the climate in St. Petersburg. Having spent five of my newspaper years in various parts of Florida I can agree with him that the summers in that state are not unpleasant.

Three or four years ago, while employed as publicity man for another electric refrigeration company, we were called upon to publicize the fact that the post office in St. Petersburg had installed some commercial equipment for the purpose of protecting perishable parcel post matter. This was interesting enough, but some of us then and there thought up the stamp angle. As I recall, we decided that the humidity in St. Petersburg, not the heat, might prove damaging to the delicate mucilage on stamps and therefore the refrigerator could easily be used for stamp storage. Our publicity subsequently mentioned this fact.

Since the equipment in the St. Petersburg post office is not Kelvinator there is no reason for my divulging further details. But whether or not stamps ever went into Mr. Hall's electrically refrigerated compartment, I think it's a good idea.

T. L. CHRYST,
Kelvinator publicity.

100% Correct

Crowell Publishing Co.
Chicago
Oct. 25, 1933.

Editor:

I have just read a very interesting editorial in ELECTRIC REFRIGERATION NEWS for Oct. 11, 1933. I refer to the editorial on page six called "Neglected Towns."

Our publication circulates in the rural market and from various information we have picked up during the past few years, we are thoroughly convinced that you are 100 per cent correct in this editorial.

A. F. COLLINS,
Western advertising manager,
The Country Home.

Good Work

"Enjoy your paper very much. Keep up the good work."—G. H. Fruechtenicht, Elgin, Ill.

INDIANA COURT RULES ON CONDITIONAL CONTRACTS

INDIANAPOLIS—The Indiana Supreme Court has recently delivered a decision in a case involving conditional sales contracts for electrical merchandise which in effect allows the seller to replevin the merchandise, sell it for what he can get, apply the proceeds to the unpaid balance and then sue the purchaser for any amount yet remaining below the original purchase price.

The right of the seller to do this, according to the decision, hinges upon the typical clause inserted in a series of notes issued to cover the unpaid balance of such a contract. This clause reads as follows:

"I further agree in consideration of the use of said property to pay any balance remaining unpaid on this or any other such note that the net proceeds on such sale are applied, and that if said property or any part thereof shall be lost, damaged, or destroyed before full payment of the purchase price, I shall not on that account be entitled to a revision of this contract or abatement in price."

In the test case the purchaser contended that the appellant by asserting his ownership and title and bringing an action to recover possession of the property as its owner, elected the remedy of recovery of the goods and thereby surrendered his right to treat the sale as absolute and bring an action for the recovery of the purchase price.

This position is asserted on the theory that the contract of sale provided that the title, with right of repossession for default, is reserved in the seller until the full purchase price has been paid in cash and constitutes the entire contract between the parties and that the notes given in part payment for the property and the provision of the notes have no place in determining the rights of the parties.

As to this contention, the court said:

"As we understand the facts, the contract of purchase provided for the payment of the property in cash or by notes and the notes here involved were given pursuant to the original contract and were what is known as 'conditional sales notes' and when executed became the contract between the parties."

Under the deficiency clause, the court ruled:

"The appellant (seller) retained title to the property in question and the right to repossess the same upon default of appellee (purchaser) in the payment of said notes or either of them. The provisions in the notes do not stop there. They go farther and provide the rights of the parties after the property has been repossessed. Under their terms appellant may sell the same and apply the proceeds, first to the payment of expenses of the sale and the residue to be credited on the notes, and if there is still a balance unpaid, appellant may sue to recover such balance."

It was further stated that: "By virtue of the deficiency clause in the notes, there is a liability on the part of the appellee to pay any deficiency after the sale of the property and the application of the proceeds as provided for therein, therefore appellee is not entitled to recover the payments previously made on the purchase price as alleged in his counter claim.

"In the event the property sells for more than enough to satisfy the notes, appellee would be entitled to such excess. But it cannot be determined until the property is sold the amount of such excess or deficiency. Should appellant refuse to sell the property and make application of the proceeds of such sale as provided for therein, appellee has his full and complete remedy if he feels himself aggrieved."

26 DISTRIBUTORS APPOINTED BY WURLITZER

NORTH TONAWANDA, N. Y.—Twenty-six new distributors for the Wurlitzer-Lyric radio, manufactured by the Rudolph Wurlitzer Co. of this city, have been named by H. E. Capehart, director of sales. They are:

Inland Radio Co., Spokane, Wash.; Waddell Co., Portland, Ore.; Homer King, Inc., Tacoma, Wash.; Seattle Hardware, Seattle, Wash.; Wright & Wilhelmy, Omaha, Nebr.; Terry-Durin Co., Cedar Rapids, Iowa; W. S. Knott Co., Minneapolis; Shapleigh Hardware, St. Louis; Peaslee-Gaulbert Co., Louisville; Van Camp Hardware Co., Indianapolis; Biehl Bros., Buffalo; Automobile Equipment Co., Detroit; Hub Cycle Co., Boston; Plymouth Electric Co., New Haven, Conn.; Albany Hardware & Iron Co., Albany, N. Y.; Lovelace Distributing Co., Bath, N. Y.; Ballou Johnson Co., Providence, R. I.; Speert Distributing Co., Baltimore; Wall Co., Wilkes-Barre, Pa.; Excelsior Radio Co., Harrisburg, Pa.; Myers Radio Co., York, Pa.; Strouther Drug Co., Lynchburg, Va.; Clinard Electric Co., Winston-Salem, N. C.; Chisholm Supply Co., Greenville, S. C.; R. F. Burns Co., Huntington, W. Va.; Henderson Iron Co, Henderson, Ky.; Southern Sales Co., Oklahoma City, Okla.; and A. J. Koepell Co., Cheboygan, Mich.

CANCER THEORY IS DECLARED FALSE BY STATE HEALTH DEPT.

RALEIGH, N. C.—"So far as any scientific evidence is concerned, there is no reason to suspect that the use of food kept in electric refrigerators is in any way a cause of cancer," declares the State Department of Health of North Carolina, after a thorough investigation of a theory that has been widely circulated, chiefly through unsigned advertising.

A statement prepared at the request of the North Carolina Department of Health by the American Society for the Control of Cancer describes the theory as an example of "an especially pernicious type of unscientific and faulty reasoning."

"It is certainly true that the use of electrical refrigeration has increased in the past few decades," it is declared in the statement. "So has, apparently, the incidence of cancer. So has the use of automobiles and airplanes, of cosmetics, of football tickets, of motion pictures, and of ocean liners.

"It is quite as logical to assume a cause and effect relationship between cancer incidence and any of these items as it is between electrical refrigeration and that phenomenon.

"The intelligent public can and does, at once, see the fallacy involved. The unintelligent public, however, may, for a time, be deceived.

"Cause and effect do not trace their ancestry to assumption. The wise individual uses them with great caution and only after they have been proved by unassailable evidence."

The North Carolina Department of Health states that it had received many requests for information as to the reliability of the claims made in such advertising to the effect that cancer and refrigeration were closely related as effect from cause. The American Medical Society, asked for its opinion, replied that no scientific grounds existed for such claims.

G-E EMPLOYMENT & ORDERS ON INCREASE

SCHENECTADY, N. Y.—All divisions of the General Electric Co. have added a total of 7,600 employes to the company's payrolls since March 1, and the total annual payroll rate is today $17,000,000 greater than it was on that date, Gerard Swope, president, said last week in a statement issued to the company's 187,000 stockholders.

New business booked the first nine months of the year has shown a consistent increase, and for the first time since 1929 orders have exceeded those for a like period of the previous year, said the report.

Another point mentioned by Mr. Swope was that this year, for the first time in three years, orders for the third quarter totaled more than the sales billed in the same period.

HOTEL SHOWROOM OPENED BY WESTINGHOUSE DEALER

JACKSON, Mich.—Winchester-Wilkins Co., recently appointed Westinghouse dealer for Jackson, has opened a new store and showroom in the Hotel Hayes building here.

The firm is headed by Burt Winchester and Ronald Wilkins. Mr. Winchester was formerly with Smith-Winchester Co., electrical appliance firm, and Mr. Wilkins was previously connected with an oil distributing company.

Winchester-Wilkins Co. is handling Westinghouse ranges, washers, vacuum cleaners, and the Westinghouse line of small appliances, in addition to the Westinghouse refrigerator.

GRUNOW FACTORY VISITED BY OMAHA MEN

CHICAGO—H. P. Sidles and C. L. Carper, president and vice president, respectively, of Sidles-Duda-Myers Co., Grunow distributor in Omaha, visited officials of the General Household Utilities Co. here recently.

On the Political Battlefront

Miss Gertrude Taylor, Miss Marcia Dreispul, John Dale, and M. J. Weigrauch, members of Fiorello La Guardia's headquarters staff, listen to the speeches of the New York mayoralty candidate (he may be mayor by now) over a Grunow radio.

62,726 WOMEN ATTEND 7 BOARD COOKING SCHOOLS

CHICAGO—Interest in preparation of meat for the table brought a combined attendance of 62,726 women to the first seven newspaper cooking schools being held throughout the East and Middle West this fall by the homemakers' service department of the National Live Stock and Meat Board here. (See story in ELECTRIC REFRIGERATION NEWS, Sept. 20.)

"The new Haven *Register* Cooking School conducted by Miss Ruth Chambers broke all attendance records for the *Register's* annual event," reported Laura E. Weillep, business manager of the homemakers' service department. "A total of 21,000 women attended the four sessions. In Toledo the same week 1,000 women stood and as many more were turned away at the final session of the Toledo *News-Bee's* cooking school conducted by Miss Ann Kingsley of our staff."

At each cooking school, members of the National Live Stock & Meat Board meat merchandising department hold discussion groups attended by meat retailers. Instruction is given at these sessions in meat cutting, display, etc.

Since Kelvinator refrigeration is used in connection with the cooking schools, Kelvinator dealers have participated in some of the discussions, at which time the subject has been meat refrigeration.

The seven schools for which attendance figures have been recorded were held in Racine, Wis.; Canton, Ohio; New Haven, Conn.; Toledo; Waterbury, Conn.; Muncie, Ind.; and Wyandotte, Mich.

Western Union Brings Grunow Message

SAN FRANCISCO—When the Oct. 21 issue of *Saturday Evening Post* appeared on the news stands, George H. Eberhard, Grunow refrigerator and radio distributor here, sent Western Union messengers to each of his dealers and prospective dealers, each of whom was given a copy of the *Post* (opened to the Grunow radio double-page advertisement).

Said the messengers to the retailers: "Good morning, Mr. Dealer: This ad explains living tone and Si-Lec-Trol as built only in Grunow radios. You had better start off with Grunow from scratch. Compliments of the Grunow distributor in your area, the George H. Eberhard Co., San Francisco."

COLE'S FLUSHING DIVISION IN NRA PARADE

FLUSHING, N. Y.—When representatives of business establishments in this Long Island town marched in the community's NRA parade on Sept. 28, the Flushing retail division of Rex Cole, Inc., New York G-E distributor, represented Minnesota in the "march of states."

Heading the Flushing G-E division was Miss Muriel Copley, acting as the "spirit of Minnesota." Next came seven Rex Cole porters carrying flags and banners, then the entire sales force of the division, and at the rear, a General Electric kitchen coach.

LEE, ASSISTANT SPARTON SALES MANAGER, DIES

JACKSON, Mich.—Kenneth Lee, assistant sales manager of the Sparks-Withington Co., manufacturer of Sparton refrigerators and radios, died Oct. 24 at his home here.

Sparks' Team Drills At Ford Show

DETROIT—The crack drill team from Jackson, Mich., trained and commanded by Capt. William Sparks, president of Sparks-Withington Co., which won first place in competition held at the recent American Legion convention, put on an exhibition before 20,000 spectators at the Ford Exposition of Progress.

Wildermuth Honors Derby Winners

BROOKLYN—Members of the E. A. Wildermuth Co., Kelvinator distributing organization, which tied for second place on the "Pimlico" track during the recent Kelvinator Derby sales contest, were feted at a luncheon held Oct. 24 at the Crescent-Hamilton Athletic club here.

Mr. E. A. Wildermuth acted as host at the luncheon at which more than 30 members of the sales organization received cash bonuses, radio sets, and other merchandise as rewards for their efforts during the period of the contest.

Philadelphia Wholesale Men Win Trips

PHILADELPHIA—Three wholesale salesmen of the Klein Stove Co., Leonard distributor here, broke their quotas in a recent wholesale men's contest to win free trips to the Leonard Refrigerator Co.'s convention in Detroit this month, according to Walter L. Brous, the distributor's refrigeration sales manager. The men were A. Seidensticker, Jr., George J. Ellis, and Harold Tiley.

Distributor Adds Four To Field Staff

ALBANY, N. Y.—Four men have been added to the field sales staff of the Capital City Distributing Corp., Gibson distributor here, according to Max E. Hegleman of that organization.

The new men, with their territory headquarters, are as follows: Irving V. Dalo, Springfield, Mass.; Ralph M. Barker, Poughkeepsie, N. Y.; Roy W. Pennell, Glens Falls, N. Y.; and Thomas Gray, Rensselaer, N. Y.

2,816 UNITS SOLD IN SAN DIEGO COUNTY

SAN DIEGO, Calif.—A total of 2,816 electric refrigerators of all makes were sold in San Diego county during the first nine months of this year, as compared with 1,650 for the same period last year, or an increase of approximately 70 per cent in unit sales, according to a report made by J. Clark Chamberlain, secretary-manager of the San Diego Electric Refrigeration Bureau.

Sales of household refrigerators by months are as follows: January, 83; February, 120; March, 237; April, 329; May, 397; June, 440; July, 583; August, 407; September, 220.

Mr. Chamberlain reports that an unofficial tabulation shows that sales for October will be in the neighborhood of 200 units, only a slight drop from the September total.

Auto Accident Brings Frigidaire Sale

OWENSBORO, Ky.—G. L. Whittaker of the Griffin Electric Co., Frigidaire dealer here, does not recommend that salesmen make a practice of crashing into their prospects' automobiles, but it was just that which sold a Frigidaire for Mr. Whittaker recently.

Having bumped into an automobile on a downtown street, Salesman Whittaker got out of his own car to apologize, and found that the driver of the dented auto was a designing engineer for a refrigerated truck manufacturer.

Explanations over, the conversation shifted to household refrigeration and Stataflex. Thirty minutes later, Mr. Whittaker was writing out an order for delivery of a Frigidaire to the engineer's residence.

COMPANION MERCHANDISE

WILLIAMS' CAMPAIGN LAUNCHED IN EAST

NEW YORK CITY—With more than 150 retailers in attendance, officials of the Williams Oil-O-Matic Heating Corp. launched the company's fall sales drive, "most aggressive merchandising campaign in Williams' history," for the eastern dealers at a meeting held Oct. 27 at the Hotel Taft here.

Factory officials present included R. D. Marshall, personal representative of C. U. Williams, president of Oil-O-Matic; Earl Ross, sales manager of the burner division; Don M. Frank, sales promotion and advertising manager; and Earl Nesmith, sales engineer.

'Live Exhibits' Are Planned for Oil Burner Show

WASHINGTON, D. C.—Authorizing that the 11th National Oil Burner Show be set up for live exhibits, when it opens in Philadelphia, the directorate of the American Oil Burner Association has fixed the date of the show and convention as March 5 to 9, inclusive, and selected the exhibition and convention hall of Commercial Museum, Philadelphia, as the site.

The directors stated that it had been found from a previous experience in Boston, where the show featured live exhibits for the first time, that the showing of burners in actual operation increases public interest and attendance.

The constitution of the A.O.B.A. was amended at the meeting of the board of directors, the number of directorships being increased from 18 to 21. The three new places created were filled by the election of J. H. Hirsch of Automatic Burner Corp., E. A. Halblieb of Delco Appliance Corp., and A. J. Fleischmann of May Oil Burner.

Morgan J. Hammers of the Petroleum Heat & Power Co. and president of the A.O.B.A., who was recently appointed chairman of the Oil Burner Code Authority, announced that he had been granted an indefinite leave of absence from the company in order that he may devote his full time to the organization of activities of the Code Authority.

NEW RANGE FITS INTO APARTMENT HOUSE WALLS

CLEVELAND—A new electric range, the "Modernette," which can be built in the apartment house kitchen wall, is being introduced by the specialty appliance sales department of General Electric Co. here.

The range can be built in on four sides. It occupies a floor space of 18x22 in. and has an overall height of 46⅞ in. It may be placed against the wall and set flush with cabinets.

Originally designed for General Electric's 60-in. kitchenette, it is now available for separate installation. It is necessary to clean the range only on the front and the top, if it is set flush in the wall. When so installed, a pull-down curtain on the wall hides the range completely.

The cooking top is 18x21¼ in. and the oven is 14x14x16 in. deep. Three Hi-speed Calrod surface units are used, with two interchangeable open-coil oven units.

Other features of the range, as pointed out by J. R. Poteat, range division manager of General Electric's specialty appliance sales department, are automatic temperature control, stainless porcelain enamel cooking surface, pebbled blue porcelain are automatic temperature control, on both oven units, and smokeless aluminum broiler pan.

It has a flat, flush oven door and switch panel, pendant type bakelite oven-door handle, counterbalanced shelf-type oven door, porcelain enamel drip tray, safety plug connections for all surface units, oven vent of induced-draft type, and storage drawer.

UTILITY'S PROMOTION AIDS DEALERS' SALES

(Concluded from Page 1, Column 5)

a gas range which had been providing revenue for the utility, no bonus would be granted. No bonuses are granted for installations made in homes which are on extension lines.

The bonus schedule is $12 for any electric range having a connected load of 5 k.w., and $18 for any water heater of the storage-tank type.

Market stimulation has been fostered through consumer education by means of cooperative newspaper advertisements and a well-staffed force of home economists who contact users.

The department of the Consumers Power Co. which directs the coordinated activity program is completely divorced from the appliance merchandising department of the utility, and the personnel of the department has been drafted from divisions of the company other than appliance merchandising. H. H. Koelbel, who directs the entire coordinated activity program, and E. E. Hardy, local coordinator for Jackson, were both formerly connected with non-merchandising divisions.

Newspaper copy which is being employed in both daily and weekly papers throughout the territory is designed to promote the idea of electric cookery. It emphasizes (1) that electric cookery is cheap; (2) that it has certain definite advantages over other types of cooking; (3) that it is fast.

Newspapers which run the cooperative copy are informed of dates on which the advertisements are to be inserted, and are encouraged by the utility to seek out dealers in electric ranges and have them advertise their particular make of range on the day that the cooperative advertisement is published.

The appliance merchandising department of the utility usually places an advertisement on the same day, with the result that one or two pages are generally dominated by electric range advertising.

Consumers Power Co. has also provided a three-piece direct mail promotional campaign, the pieces being sent to the dealer's prospects on the same day that the newspaper copy appears, thus providing a double-barrelled promotional attack on range or water heater prospects.

The theme of the mailing piece copy is general promotion of electric cookery, with one side devoted to recipes, and space at the bottom for the dealer's signature.

The 12 home economists who are functioning in the various districts served by the utility in conjunction with the coordinated activity employ their time in contacting users of new electrical appliances.

There is a three-fold purpose in this type of operation by the home economists. In the first place, many electric ranges are installed in homes where coal or kerosene burning stoves were used. This makes it necessary for the housewife to learn an entirely new method of cooking, under the guidance of the home economist.

Secondly, it is excellent promotion for the dealer in electrical appliances, building and maintaining good will for him. For example, when a housewife discovers that she has difficulty in getting results with a certain cake recipe baked with her electric range, the dealer might not be able to supply a remedy, but that is certainly a job cut out for the home economist.

Third and finally, the home economist often operates in the nature of an indirect "canvasser" for the dealer. When the home economist goes out on a call for a particular dealer, she is working for that dealer, and any tips which she may get concerning the possibilities for sales of other appliances are given to the dealer in question.

COOKERY COUNCIL WORK REVIEWED IN BOOKLET

NEW YORK CITY—What the National Electric Cookery Council has accomplished this year is put into concrete form in a booklet prepared by the council entitled, "In the Spotlight," which gives results of the New Victory Contest participated in by range selling organizations during April, May, and June of 1933.

Following a short introduction on work of the council, winners in the six divisions of the contest are listed. Major portion of the booklet analyzes in detail each winning plan, giving attention to names and pictures of winners, prizes, special activities, and advertising used.

Assistance available to range retailers from the council is explained on final pages.

PHILLIPS MANAGES SERVICE ON M-W HEATERS

LANSING, Mich.—George H. Phillips has been appointed service manager for the heater division of Motor Wheel Corp.

Norge Distributors Plan 1934 Merchandising Campaign

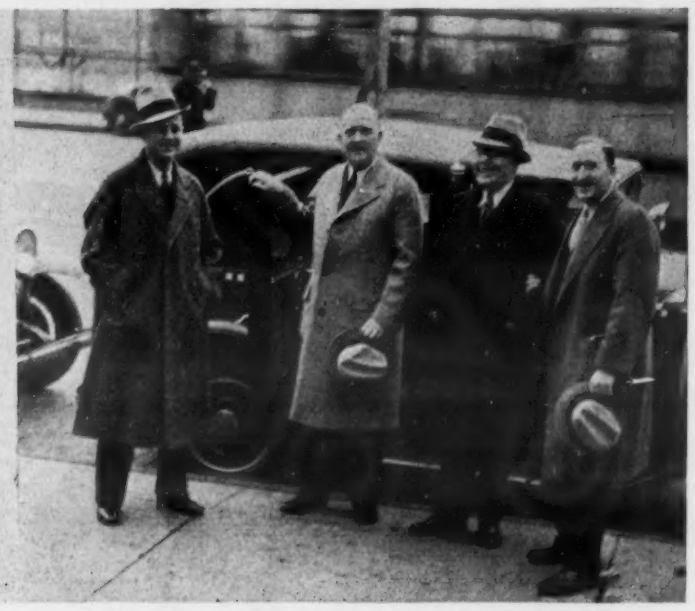
Denny Densmore, Harry Knodel, Ed Oliphant, and Ray Harten wear these post-depression smiles.

Norgemen O'Harra, Oppenheim, Tenney, Levy, Triano, Meyer, and Pizarro save three cents and let W. H. Bergman read the news to them.

Messrs. Lovegren, Harding, Densmore, and Parks cheer as George Pizarro gets dressed in time for the first session.

A. H. Meyers, Peter Dues, H. Zenker, and George Pizarro leave for the Players Club.

Entering the convention hall are (left to right) Distributors Reed, Lovegren, Vestal, Parks, Smithers, Adams, Reinhard.



Off to the meetings after a meal on Broilator ham and eggs are S. P. Cornick, P. A. Seaton, T. F. McIntyre, and H. M. Finn.

A. E. Bottenfield (left) and Zan Crow of St. Louis study the program with R. E. Densmore.

A tableful of Norge distributors and Cramer-Krasselt advertising agency men smile obligingly while they wait for their waffles and bacon at the convention's first event—breakfast.

Two Norge blondes—Vera Wooley and Betty Appel—admire A. N. Delzeith's new suit.

Another cabload of Norgemen arrives for session No. 1. They are F. Triano, W. H. Bergman, A. H. Meyer, S. J. Levy, and C. Curtis.

Borg-Warner officials Gus Shallberg, M. Keck, George Borg are convention guests.

French Nestor of Jacksonville, Fla., offers a smoke to always-hatless Dave Trilling, Philadelphia distributor. He gave the others a fag a minute later.

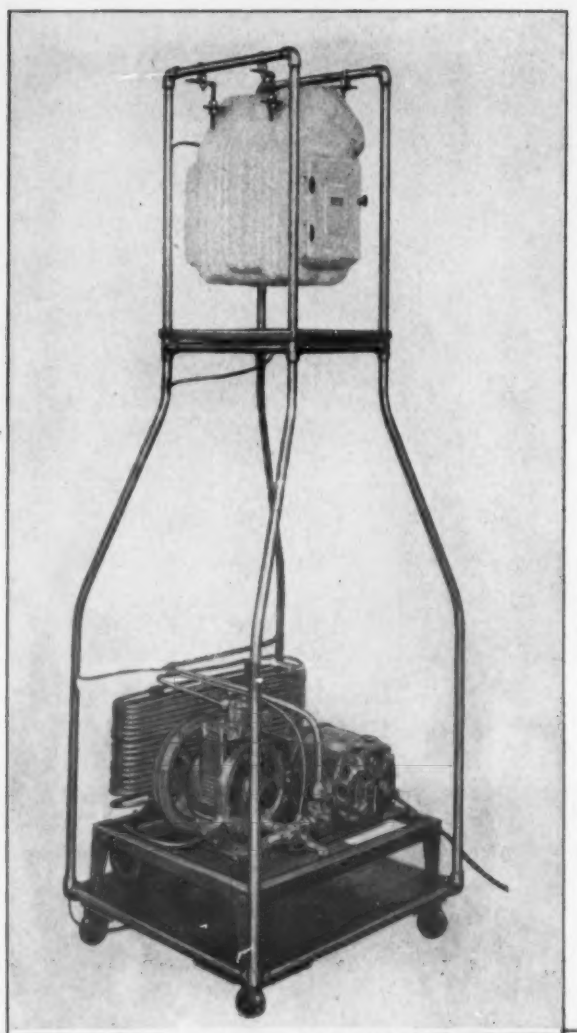
BIG CITIES LITTLE CITIES

ALL FIGUR

AVALANCHE OF

A RECORD SPRING AND SUMMER...START THE FALL AND WINTER WITH A RUSH OF BUSINESS

it's a Norge Rollator Triumph



● The convincing proof of Norge mechanical superiority lies in the Marathon Rollator Test, which has been running for the equivalent of over a quarter of a century of home usage and shows no measurable wear.

● New style features originated by Norge show why women prefer Norge design. Styled cabinets combined with the proven Rollator make Norge a ready seller.

Refrigeration business has been good in 1933 . . . but the records made by Norge dealers and salesmen have focused the attention of the entire industry on Norge. Almost from the very day that Norge startled the industry with a newly styled cabinet that brought to Norge the same leadership in cabinet design that Norge has always had in mechanical design . . . Norge sales have pyramided and each month its past records fell by the wayside.

First quarter sales greatly exceeded those of any similar period and were climaxed by the shipment of seventeen solid trainloads in June . . . in the month of July alone more Norges were shipped than during the entire last six months of 1932...in August shipments were nearly five times those of August, 1932 . . . in September sales were 445% as compared with September, 1932.

Not Only Sales, But Resales

These mass shipments that have made this A NORGE YEAR . . . have done no more than supply the constantly growing demand on the part of a refrigeration-wise public for Norge products. That this is the unvarnished truth is proven by the fact that retail sales are keeping pace with shipments . . . distributor and dealer stocks are today at the lowest point compatible with good business. Five thousand Norge dealers and ten thousand Norge salesmen who have made possible this outstanding merchandising success have all profited accordingly.

When any product attains national prominence in such a short space of time . . . when any product so quickly becomes a major factor in an industry...and when any product continues to sell in continually increasing volume . . .

There is only one answer . . .

Consumer Preference Has Been Built Up for Norge by the Very Quality of the Refrigeration It Gives . . .

Purchaser's dollars have not gone into extravagant advertising campaigns...costly sales promotion "stunts" have not been resorted to...Norge has built the best refrigerator possible, believing that user satisfaction would do just what it did . . . raise Norge to prominence in the industry.

In Norge alone can be bought the exclusive, silent, economical, long-life Rollator mechanism...in Norge alone can be bought modern styled, quality-built cabinets . . . in Norge alone can this happy combination of quality mechanism and quality cabinets be obtained at a fair price.

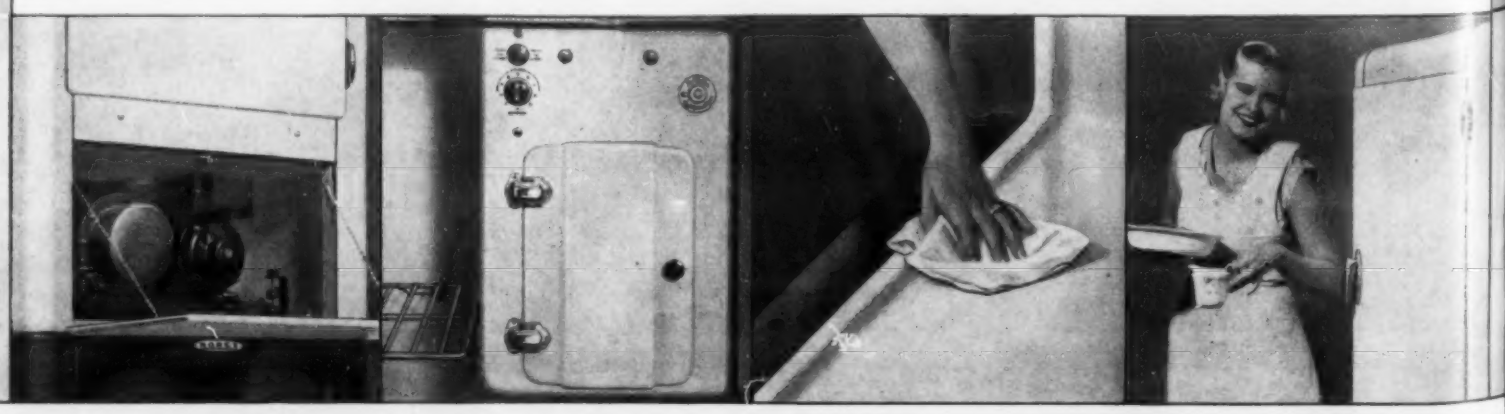
Norge Dealers are Making Money . . .

With sales exceeding all expectations . . . with sound merchandising plans supporting the highest quality product ...with consumer preference definitely set toward Norge . . . dealers everywhere are profiting. Fair discounts, low service expense, small inventories and full factory and distributor cooperation all make for greater dealer profits.

If You Want to Sell the Best and Do It Profitably . . .

Wire, write or phone about Norge. Let a Norge representative present facts of product and profit that will startle you. Find out about the Norge dealer plan . . . salesmen's bonus . . . sales tools . . . advertising . . . everything that has contributed to Norge dealer success.

NORGE CORPORATION; DIVISION OF BORG-WARNER CORPORATION, 606-670 E. WOODBRIDGE ST., DETROIT, MICH.



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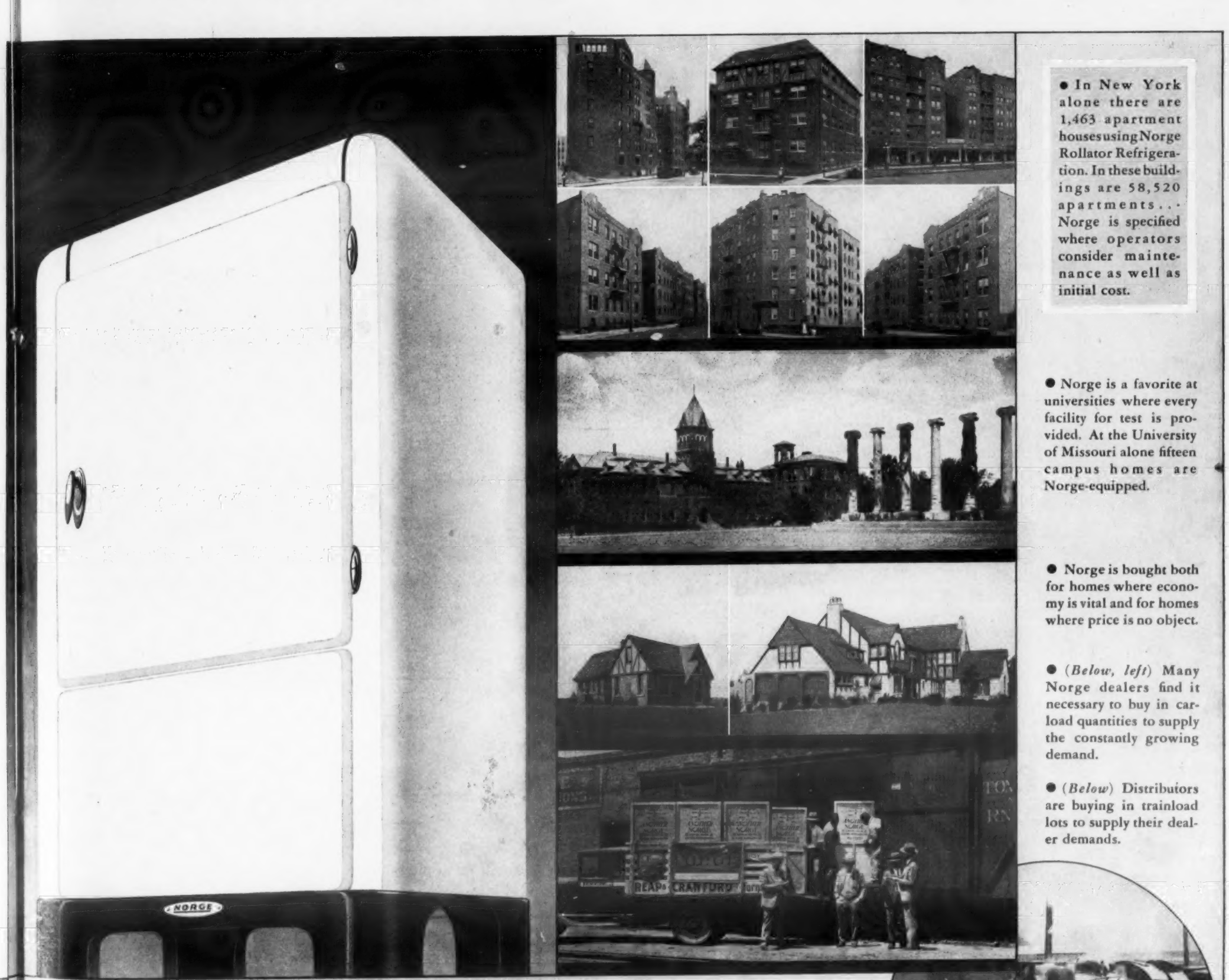
TOWNS AND HAMLETS

URE IN THE

NORGE SALES!



● In New York alone there are 1,463 apartment houses using Norge Rollator Refrigeration. In these buildings are 58,520 apartments... Norge is specified where operators consider maintenance as well as initial cost.

● Norge is a favorite at universities where every facility for test is provided. At the University of Missouri alone fifteen campus homes are Norge-equipped.

● Norge is bought both for homes where economy is vital and for homes where price is no object.

● (*Below, left*) Many Norge dealers find it necessary to buy in carload quantities to supply the constantly growing demand.

● (*Below*) Distributors are buying in trainload lots to supply their dealer demands.

NORGE

Rollator refrigeration

The Only Genuine ROLLATOR — Only in Norge can it be had... the simplest known refrigerating mechanism... proven by time and test and approved by every owner. A roller rolls and there's ice.

NEW NORGE PRODUCTS

Opportunities for extra dealer profits are offered in Norge Economaid Clothes Washer, the new Norge combination Beverage and Food Cooler... and the new Broilator short-order stove that cooks without grease, smoke or odor. Investigate these live merchandising items of the Norge line.

NRA MEMBER U.S. WE DO OUR PART

Norge's Rollators and Broilators Catch the Camera's Eye

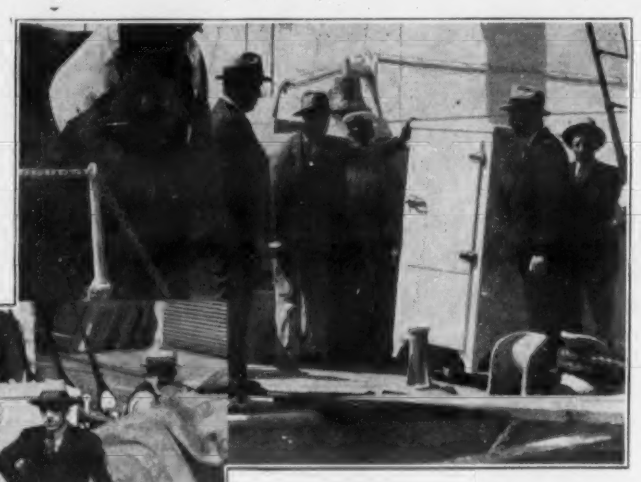
Bringing home the bacon with hamburgers. George Ackerman, Broilator sales manager for Dale J. McGinnis, Norge dealer in Chicago, dons a chef's togs and serves sandwiches to a crowd of prospective buyers of the new Norge cooking appliance.

When more than 400,000 persons lined St. Louis streets during the city's recent NRA parade, they saw this Norge float, entered by the distributor—Norge Co. of Missouri.

"Chef-ing's a pleasure now," says this smiling waiter as he lifts a steak from the Norge Broilator just installed in the Gateway restaurant, Chicago.

F. A. Halloran, Tom Savage, and Jim Buffardi, New Jersey Norge dealers, munch food cooked in a Norge Broilator at the "Viking Grill" constructed by Ben Oppenheim, Newark Norge distributor, to demonstrate the broiler to his retailers.

Norge goes to sea—this time as part of the equipment of the U. S. S. Northland, now in the Bering Sea. Frank Pollard of Oakland, Calif., made the sale.



Who wouldn't buy from a refrigerator salesman like this? Althea Henley, Monogram cinemactress, tells her friend about the fine points of a Norge rollator.

Mary Carlisle, Sally Starr, and Mary Blackford, portraying campus cuties in Monogram Pictures' "Sweetheart of Sigma Chi," raid the Norge refrigerator in the sorority kitchen after dating time.

"The Sweetheart of Sigma Chi" and "The Sweetheart of the Kitchen"—in other words, Mary Carlisle, screen player, and a Norge refrigerator—team up for a picture.

ENGINEERING

COOK CO. INTRODUCES NEW LACQUER FINISH

KANSAS CITY, Mo.—Cook Paint & Varnish Co. of this city is introducing a new cabinet finish to be known as "Coroc Refrigerator Lacquer," according to R. A. Richardson.

In the Coroc system, the first application is of a special oil-type baking primer designed to prevent yellowing of the finish coat. Next two coats of the lacquer proper are applied, producing a lustrous finish. Formulas for the lacquers are flexible enough to permit adjustment to specific finishing schedules, Mr. Richardson states.

The company reports the following tests made in its laboratory to determine its characteristics:

No break-down occurs even after 1,150 hours in a humidity cabinet having 100 per cent relative humidity at 103° to 105° F. temperature. When subjected to sulphur dioxide fumes at atmospheric pressure for 24 hours no discoloration occurs. When subjected to rancid sweet butter, oleic acid, lard, and oleo for 21 days at 100° F., no softening of the film takes place.

Blows on both surface and back of test panel reveal good adhesion of lacquer to primer and primer to metal. A bend of 180° over a ½-in. rod shows minimum checking. Criss-cross cuts with a sharp knife through film to the metal do not cause chipping, and exposure to north light for 21 days shows no discoloration, tests show.

Refinishing lacquers, having the same characteristics for use with air-drying primers, are also available, permitting the small refinishing shop to produce jobs like the original finish.

Celotex Insulation Is Ferox Treated

CHICAGO—All Celotex refrigeration insulation is treated by the Ferox process, developed by Celotex engineers as a protection against termites, insects, and fungi, according to J. H. Bracken, manager of the industrial uses department of the company.

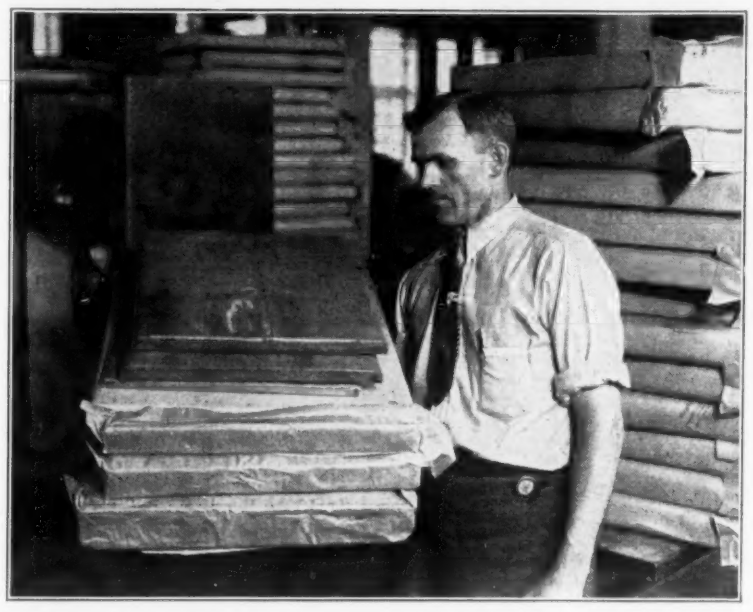
This process is a method of coating individual fibres, in their wet state and before formation into a board, with a chemical which is toxic to fungi, termites, and other cellulose-destroying organisms. The chemical is insoluble in water, non-volatile, odorless, and doesn't change the physical properties of the insulation, Mr. Bracken states.

Celotex is made from sugar cane fibre which the company secures from central points in the sugar industry. Cane fibre is an almost pure ligno cellulose with practically no nitrogen or mineral salts, Mr. Bracken declares.

Insulation production at the Celotex plant is under careful inspection, one out of every ten plant employes working in control and test work. Hourly samples are taken from the production machines to check moisture-proofing, Ferox treatment, density, and fibre formation. Daily tests of heat conductivity are made on the company's hot-plate apparatus.

At the company's laboratory, the cabinets of refrigerator manufacturers are run through tests to determine their performance with different thicknesses of insulation and under different operating conditions as a special service to manufacturers.

Enough for One Cabinet



In one hand this workman holds enough Hermetex slabs for one cabinet.

PORCELOID DEVELOPED BY BRADLEY & VROOMAN CO.

CHICAGO—Bradley & Vrooman Co. here is introducing "Porceloid," a new refrigerator finish of the air-dry or low-heat force-dry variety. According to S. Rosenthal, president of the company, it is resistant to grease, refrigerant gas fumes, moisture, rust, and acid, as well as reducing wear at edges of refrigerator doors.

"It is elastic and adhesive enough to prevent chipping," Mr. Rosenthal declares, "but hard enough to prevent marking from objects such as heavy tin cans with sharp edges.

Hermetex Installed in 215,000 Refrigerators

DETROIT — Hermetex, the new paper cell insulation of Detroit Paper Products Corp., was used to insulate approximately 215,000 refrigerators during the season just ending, according to Seymour Franklin, president.

It is made of corrugated paper and is hermetically sealed in a water and vermin-proof wrapper. Seven sheets of corrugated fibre per inch of thickness comprise the core of this material, the stock having 34 to 38 corrugations per lineal foot. The corrugations are crossed so as to produce numerous dead air cells.

8 CABINET BUILDERS FORMING THEIR OWN SLABS OF INSULATION

CHICAGO—Eight refrigerator cabinet manufacturers throughout the country have adopted Wood Conversion Co.'s process for the production of sealed slab insulation in the factory of the refrigerator manufacturer, and several others are planning to use it next year, according to D. H. Corlette, sales manager of Wood Conversion's railroad and industrial department.

Instead of carrying large stocks of pre-fabricated material, these manufacturers are able to make the slabs as needed, and insulation production can be changed simultaneously with that of other cabinet parts. The results are reduction of inventory, plus flexibility of operation, Mr. Corlette explains.

The raw material, purchased from the Wood Conversion Co., is a specially treated and sterilized, fluffy wood fibre that is compressed into bales for shipment.

Complete equipment for reprocessing this fibre and forming it to the proper density and sizes is leased to the refrigerator manufacturer by the Wood Conversion Co. The insulating mat is extruded from this machine into waterproof enclosures, ready-made to exact sizes for cabinet insulation.

There are a number of features in connection with this type of insulation. The method of filling and sealing the waterproof enclosure (under considerable pressure) provides a firm, yet resilient slab that Mr. Corlette claims will not settle. In addition, the resiliency of the confined fibres gives the slab a permanent tendency to expand and conform to any irregularities in the porcelain lining, he avers and the pressure against the outside walls of the cabinet also eliminates "tinny" sounds.

Refrigeration Insulation Depends on Three Kinds of Resistances

By Harvey Lindsay, President, Dry-Zero Corp.

SPEAKING plainly, it is a physical impossibility to make an efficient, economical, and lasting electric refrigerator, without efficient and lasting insulation—no matter how good the machine unit is. Hence if intelligent selling builds business on a stable foundation, every good man in the selling end of the industry should know his cabinet's insulation and its advantages as thoroughly as he knows his machine unit.

This cannot be the case, however, unless there exists a reasonably intelligent grasp of what insulation is and how and why it operates. In this article the writer will try to show some of the physical facts on which the science of heat insulation is based.

First, it is necessary to realize that some old beliefs about insulation have long been proved little more than myths, though still occasionally appearing in uninformed statements.

For example: the "dead air" space or cell, and the film or blanket of "stagnant" air covering solid surfaces, are examples of such myths. Elemental knowledge of *what air is* long ago deposed the one from the realm of fact, and Langmuir's accepted theory of the mono-molecular adsorption of gases as well as simple and conclusive experimentation, disposed of the other.

Heat "insulation" is composed of distinct kinds of resistances that can be set up against the flow or travel of heat in a definite direction. Before describing each of the three most important resistances, it is essential that we understand what air (or any gas) actually is physically.

1. Air is *not* a continuous thing but really and actually a lot of minute specks—molecules of nitrogen, oxygen, CO_2, and other impurities. These perfectly solid specks *themselves* are the air—not what may be between them.

2. Until liquefied or frozen together, the air specks are at all times in constant and rapid motion, for all purposes of insulation.

3. Air specks are so inconceivably minute that millions upon millions of them, for example, occupy the tiny tube of ceiba or cells of cork.

4. Even in such microscopic spaces these millions of air specks are (with the exception of one activity) as free to act under the impulse of heat as they are in a room.

We know of no "solid" material that offers anything like as much resistance to heat conductivity as is offered by the same material alternating with bodies of air across the line of heat flow (porosity, cellularity, etc.). Consequently, the study of insulation becomes the study of checking heat flow in passing from a solid surface, through a body of air (varying from large to microscopic), and into an opposing solid surface.

Under varying conditions, heat has three ways of making this passage. There are also three distinct kinds of resistances that can be set up against such passage. This last fact must be clearly understood.

What are these three resistances?

1. In any air space, whether microscopic in an insulant or occupying the whole wall, the constantly flying air specks are constantly striking the side walls of that space. To carry heat across they can only accept or discharge a heat (differential) load, *at the moment of impact,* and the nature of that impact determines how full the heat transfer to or from the air speck will be.

If, speaking ultra-microscopically, the wall is smooth and hard (Fig. I), there is a single hit and instant rebound; if it is smooth but very soft or moist (Fig. II), there will be a momentary indentation and sluggish rebound; while if it is very rough there will be a number of contacts (Fig. III).

As heat causes an actual rotation or agitation of the air specks, it is obvious that the microscopic nature of the solid surfaces govern this difficulty of transfer of this agitation (heat) from the warmer wall to the air speck, and, after it has made the trip across, from the speck to the cooler wall.

This is the "specific surface resistance" of the material which is indicated as "S" in Fig. IV.

Hard Surface

Fig. I

How flying air specks strike and rebound from a hard surface.

Soft or Moist

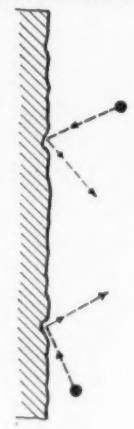


Fig. II

Rebound from a soft or moist surface is more sluggish.

Rough Surface

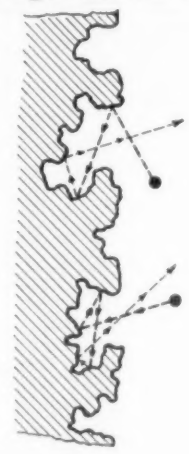


Fig. III

There are a number of contacts when an air speck strikes a rough surface.

Action in a 2-in. Air Space

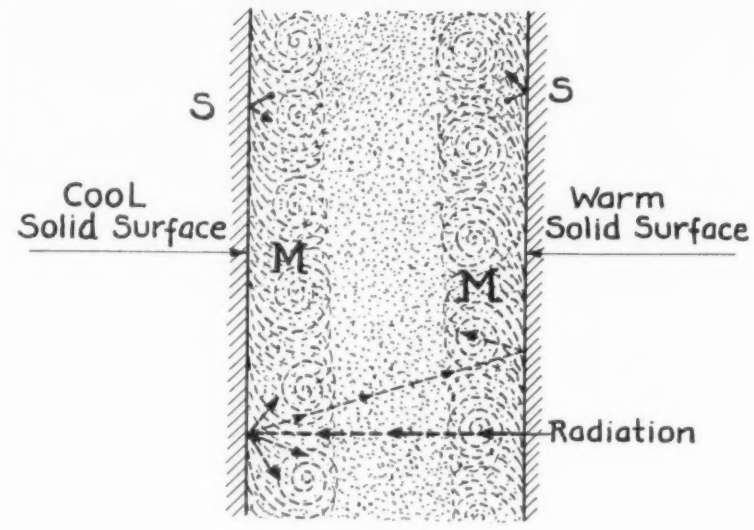


Fig. IV

Specific resistance (S), marginal resistance (M), and radiation through an insulation are all explained by Mr. Lindsay herewith.

2. When we introduce a large air space (say, 2 in. thick) into an insulating wall from top to bottom, we find we have set up another distinct resistance to heat travel. What is it? Simply a vortical action of the air specks (shown clearly in Fig. IV at "M") caused by convection.

This disturbance obviously tends to keep whirling the warm air specks against the warm wall (upward) and the cool air specks against the cool wall (downward), thus checking heat transfer and at the same time impeding the access of cooler molecules to the warm wall and warmer molecules to the cool wall. Let us mark this resistance "M" (its proper name should be "marginal resistance" although it is generally vaguely referred to as "surface resistance").

3. Some of the heat traveling through an air space does so by radiation. As, however, this travel is a function of the difference between the fourth powers of the absolute temperatures of the solid surfaces on the two sides of an airspace, this phase of heat flow is reduced to practically nothing in the case of finely divided insulants—such as most insulating materials.

However, with regard to the outside surface of the wall, or in cases of bounded air spaces in the wall, radiated heat has to be reckoned with. Resistance to its absorption and continued travel as re-radiation in such cases, depends upon the absorption and emission value of the successive surfaces. We will indicate this resistance as "R", though in a well insulated wall radiation within is a negligible factor.

Now having a conception of the three forms of resistance to heat flow through an insulated wall—"S", "M", and "R", look at Fig. IV again.

First, consider it a 2-in. hollow wall. As soon as the one side is cooled down, the trillions of air specks in that space will begin unloading their excess heat on the cooler wall as they hit it, and eventually take on a new load from the warmer wall when they strike it—and repeat.

In doing so they may have to travel (in their irregular progress) many inches or even hundreds of inches and often sharing loads with other unsatisfied specks they meet. The heat transfer from this activity will be governed by resistance "S".

But, at the same time the rising and descending vortical areas will be formed next to the walls, adding greatly to the time of travel of the air specks from warm to cool side and so providing resistance "M" in addition.

In the meantime, if there is a considerable difference of temperature (say, 30° F.) between the two walls of the air-space, some of the heat from the warm side will be transmitted by radiation. If the solid surfaces have a high reflectivity, as a bright, bare, untarnished uncoated metal, the greater part (perhaps as high as 85 to 90 per cent) of this radiated *portion* of the heat flow will be reflected back and forth—(resistance "R").

While this means that but little of it in that form is being absorbed and so getting through, that very fact results in its gradually building up the heat of the air specks and so becoming conductive heat instead—and eventually all getting through in that form.

Where, however, insulating material occupies the space, the difference of temperature from one solid face to the next (walls of cells or tubes or adjoining fibres) is so minute that radiation may be said to have been wholly checked, so that this factor of heat flow is eliminated.

Now we come to an interesting and necessary piece of knowledge: Resistance "M" must have very definite room to work in or its value rapidly disappears. If we bring the solid surfaces slowly together, we find no material change in overall "insulation value" until we have about ⅞ in. between. From there on, the total value of the space decreases faster and faster, until when the space is as

(*Concluded on Page 17, Column 2*)

Armstrong Cork Operates Laboratory For Testing Cabinet Insulation

By Ralph Winslow, Armstrong Cork & Insulation Co.

NO responsible automobile manufacturer would even consider building a new model without subjecting it to strenuous and exacting tests before placing his new car in the hands of the consumer. Thus we have the great proving grounds where the motor companies put their cars through gruelling tests to determine how they will stand up under every conceivable road condition.

Refrigerator manufacturers should be no less thorough in finding out how their product will perform in actual use. Fortunately, many of the major manufacturers have extensive research facilities to do that job.

There are a number of smaller manufacturers, however, who are not in a position to assume the added overhead involved in making exhaustive tests. They are just as anxious as their larger competitors, of course, in making sure that their refrigerator will perform efficiently in actual service.

The Armstrong Cork & Insulation Co. places the facilities of its Life Test Room at the disposal of these manufacturers.

Armstrong's "life test" consists of subjecting a refrigerator to accelerated conditions of humidity and temperature for definite periods of time, and measuring the efficiency by a comparison at stated intervals with the rating established on the equipment at the beginning of the test.

Entire impartiality is the keynote of the test which is made in cooperation with the refrigerator manufacturer's own engineers. The only aim is to develop actual facts regarding insulation performance and cabinet construction.

Forty refrigerators of ordinary household size can be tested in the Armstrong Life Test Room at one time. A floor space of 5 ft. by 6 ft. for each refrigerator allows sufficient room between boxes for proper air circulation.

The first step in testing the refrigerators is to make a rating test under the specifications as proposed by the American Society of Refrigerating Engineers or the American Standards Association. Then the temperature and humidity of the Life Test Room are raised to 100° F. and 90 per cent respectively.

The refrigerator being tested under these conditions is operated for a definite period of time, a record of all inside temperatures being kept during this period. At the end of the above period, the temperature and humidity of the room are lowered to meet the specifications of the rating test previously made on the box and the rating test is repeated.

The temperature and humidity conditions then are accelerated for another period, this cycle being repeated until a very definite lowering of the insulating value of the box is observed.

During the progress of the "life test," all temperatures and humidities are recorded on a wet and dry-bulb recording thermometer centrally located, the values in various parts of the room being checked from time to time by standard thermometers to guard against changes through rearrangement of the boxes.

Inside the refrigerators, the temperatures are measured by thermocouples placed at stipulated points in the food compartment, and they are recorded by multiple point recording thermometers specially calibrated for the thermocouple wire used. A group of three copper-constantan couples in series is used at each point to multiply the readings and insure greater accuracy.

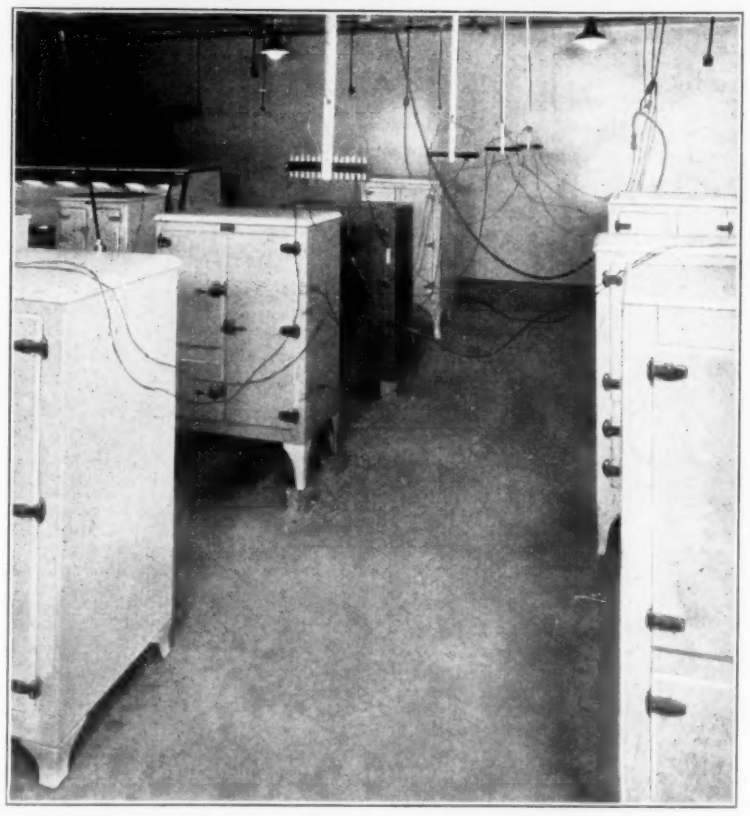
When the refrigerator is dissected at the end of the "life test," all guesswork as to how the refrigerator will stand up has been eliminated, as the test is equal to a lifetime of service in the household kitchen.

If the joint conference of engineers decides that improvement can be gained by re-insulating and re-testing, that is done. Or, rebuilding of the entire box may be decided upon.

This alternate testing and rebuilding, carried on in cooperation with the engineers of the refrigerator manufacturer whose equipment is being tested, is continued until the proper method of insulating each type of refrigerator has been achieved.

It is often found that apparently trivial things—a misplaced screw, an inefficient gasket, or some minor kink in the assembly—is responsible for the poor service secured from an otherwise well-constructed cabinet. Whatever the cause of the failure, it can be definitely determined.

Testing Cabinet Insulation



Armstrong Cork's Life Test Room in Lancaster, Pa., where accelerated temperature and humidity tests are run on household refrigerators.

ROOM COOLER USED IN BUTTER MAKING

VAN WERT, Ohio—One of the new uses to which air conditioning is being put is to maintain an even temperature and purify the air in the manufacturing of butter. An installation of this type, made by Frigidaire, is in the wrapping room of the Van Wert Butter Co. here.

In the manufacture of butter, uniformity of temperature and cleanliness are two prime necessities. Through the use of air conditioning, this has been accomplished economically.

Using a floor-type conditioner it has been possible to maintain the temperature at between 60 and 70° F. in this room during the summer months. Improved sanitary conditions also have been accomplished through the purification of the air, eliminating odors, and removing foreign particles.

Temperature in the large storage room of this company is held steadily at 35° F. throughout the year, according to G. E. Leslie, treasurer of the creamery. In this room coils are arranged close to the ceiling and extending along one entire side, providing reserve of refrigeration so that despite severe loads of freshly churned butter and cans of cream brought in by the farmers, the temperature has never varied more than 3°.

HARVEY LINDSAY EXPLAINS TYPES OF HEAT TRANSFER

(*Concluded from Page 16, Column 5*)

little as 1/16 in., the insulating value of the wall is practically that of the two sheets alone.

From Fig. IV what happens is obvious: the rising and descending vortical areas (which have each an approximate thickness of ⅜ in. to ½ in. for normal refrigerator wall heights) begin to interfere increasingly with each other, and eventually cease action entirely—thus eliminating resistance "M", and leaving only resistances "S" and "R" which are not affected by the thickness of the air space.

With proper spacing, a single resistance "M" is many times greater than a single resistance "S" at its best, but we can get thousands of "S" resistances into the same space required for a few "M" resistances and so produce in actual practice a much more efficient, as well as a much more lasting, insulated wall.

As already indicated, resistance "R" is only of appreciable value on the outer or warmer surface of the wall, and to a limited extent where sheet insulation (resistance "M") is employed—usually for cheapness' sake—as inter-sheet air spaces anywhere near the cold side cause inevitable moisture troubles in spite of "seals."

One hears occasionally of grotesquely high insulation values obtained by "new" designs of insulation. Most such instances are not in the least new to students of the science of insulation, indeed have been tried out years ago and naturally failed to deliver in actual operation any resistance beyond what the laws of heat flow permit.

In one such case a type of insulation widely bruited in America as new and startling in efficiency results, is just 15 years old in Germany, where years of experience have clearly proved its very definite limitations. Indeed, Dr. Lisse of the Sprengluftgeselschaft (liquid oxygen) came to see the writer some years ago to find out how we were able to produce so much higher insulation value in a given wall thickness than they could with this type of insulation—now "new" in America.

The water *vapor* or moisture phase of insulation is equally important as it largely governs permanence. In this study likewise, some old beliefs have developed to be mere incantations but very interesting and important facts have been uncovered.

TEXAS CO. & A.S.T.M. DEFINE CLOUD POINT & POUR POINT OF OIL

NEW YORK CITY—Explanation of the meanings and significance of the terms "cloud point" and "pour point" as applied to a lubricating oil subjected to low temperature conditions have been issued by the Texas Co., along with the American Society of Testing Materials' methods of determining these factors.

The behavior of a lubricating oil when subjected to a low temperature has led to considerable study of methods of test, to determine accurately the point at which congealing begins and fluidity becomes retarded, Texas engineers state.

"In the interest of effective lubrication at low temperatures, this knowledge becomes of considerable value in initial selection of oils which will possess adequate fluidity to enable ready handling in lubricating devices, and maintain protective lubrication of the parts to be served," they state.

The results of these studies with the methods of test procedure have been presented by the A.S.T.M. as the "A.S.T.M. Method of Test for Cloud and Pour Point, D-97-30 and Tentative Revision of 1933." According to this definition:

"(a) The cloud point of a petroleum oil is the temperature at which paraffin wax or other solid substances begin to crystallize out or separate from solution when the oil is chilled under definite prescribed conditions.

"(b) The pour point of a petroleum oil is the lowest temperature at which the oil will pour or flow when it is chilled without disturbance under definite prescribed conditions."

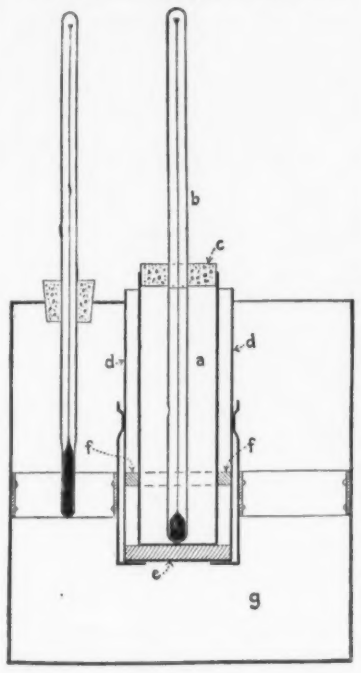
Methods of procedure for these determinations follow:

Procedure for Cloud Point

"The oil to be tested shall be brought to a temperature at least 25° F., above the approximate cloud point. Moisture, if present, shall be removed by any suitable method, as by filtration through dry filter paper until the oil is perfectly clear, but such filtration shall be made at a temperature at least 25° F., above the approximate cloud point.

"The clear oil shall be poured into the test jar, a, (see adjoining figure) to a height of not less than 2 nor more than 2¼ in. The test jar may be marked to indicate the proper level.

Test Apparatus



A.S.T.M. apparatus for determination of cloud and pour points (as assembled for cloud-point test). A indicates test jar, B thermometer, C cork in top of A, D a glass or metal watertight jacket, E a cork or felt disk of the same diameter as inside of jacket, F a ring gasket made to fit snugly around outside of test jar and loosely inside jacket, and G is the cooling bath.

"The test jar shall be tightly closed by the cork, c, carrying the test thermometer, b, in a vertical position in the center of the jar with the thermometer bulb resting on the bottom of the jar.

"The disk, e, shall be placed in the bottom of the jacket, d, and the test jar with the ring gasket, f, 1 in. above the bottom shall be inserted into the jacket. The disk, jacket, and inside of jacket shall be clean and dry.

"The temperature of the cooling bath, g, shall be maintained at not lower than 30° F. The jacket, containing the test jar, shall be supported firmly in a vertical position in the cooling bath so that not more than 1 in. of the jacket projects out of the cooling medium.

"At each test thermometer reading which is a multiple of 2° F., the test jar shall be removed from the jacket, quickly but without disturbing the oil, inspected for cloud, and replaced in the jacket. This complete operation shall require not more than 3 seconds. If the oil does not show a cloud when it has been cooled to 50° F., the test jar shall be placed in a second bath maintained at a temperature not lower than zero. If the oil does not show a cloud when it has been cooled to 20° F., the test jar shall be placed in a third bath maintained at a temperature not lower than –30° F.

"When such inspection first reveals a distinct cloudiness or haze in the oil at the bottom of the test jar the reading of the test thermometer, corrected for error if necessary, shall be recorded as the cloud point.

Procedure for Pour Point

"The oil shall be poured into the test jar, a, to a height of not less than 2 nor more than 2¼ in. The jar may be marked to indicate the proper level. When necessary, the oil shall be heated in a water bath just sufficiently for pouring into the test jar.

"The test jar shall be tightly closed by the cork, c, carrying the test thermometer, b, in a vertical position in the center of the jar with the thermometer bulb immersed so that the beginning of the capillary shall be ⅛ in. below the surface of the oil.

"Heat without stirring to a temperature of 115° F., in a bath maintained at not higher than 118° F. The oil shall then be cooled to 90° F., in air or in a water bath approximately 77° F. in temperature.

For Low-Pour Point Oils

"Oils on which a very low pour point is expected shall be heated as above with the high cloud- and pour-test thermometer in position, cooled to 60° F., and the low cloud- and pour-test thermometer placed in position and the assembly placed in the jacket.

"Oils on which a pour point of above 90° F. is expected shall be heated to 115° F., or to a temperature 15° F. above the expected pour point, with the high cloud- and pour-test thermometer in position, and the test jar immediately introduced into the jacket.

"The disk, e, shall be placed in the bottom of the jacket, d, and the test jar, with the ring gasket, f, 1 in. above the bottom, shall be inserted into the jacket. The disk, gasket, and inside of jacket shall be clean and dry.

"After the oil has cooled enough to allow the formation of a paraffin wax crystals, great care shall be taken not to disturb the mass of the oil nor to permit the thermometer to shift in the oil. Any disturbance of the spongy network of wax crystals will lead to low and fictitious results.

30 Degree Temperature Maintained

"The temperature of the cooling bath, g, shall be maintained at not lower than 30° F. The jacket, containing the test jar, shall be supported firmly in a vertical position in the cooling bath so that not more than 1 in. of the jacket projects out of the cooling medium.

"Beginning at a temperature 20° F. before the expected pour point, at each test thermometer reading which is a multiple of 5° F., the test jar shall be removed from the jacket carefully and shall be tilted just enough to ascertain whether there is a movement of the oil in the test jar. The complete operation of removal and replacement shall require not more than 3 seconds.

"If the oil has not ceased to flow when its temperature has reached 50° F., the test jar shall be placed in the jacket in a second bath maintained at a temperature not lower than zero. If the oil has not ceased to flow when its temperature has reached 20° F., the test jar shall be placed in the jacket in a third bath maintained at a temperature not lower than –30° F.

Lowering the Temperature

"For determinations of very low pour points, additional baths should be maintained with successively lower temperature differentials of about 30° F. In each case the test jar shall be transferred when the temperature of the oil reaches a point 50° F., above the temperature of the new bath. At no time shall the cold test jar be placed directly in the cooling medium.

"As soon as the oil in the test jar does not flow when the jar is tilted, the test jar shall be held in a horizontal position for exactly 5 seconds, as noted by a stop watch or other accurate timing device and observed carefully. If the oil shows any movement under these conditions the test jar shall be immediately replaced in the jacket, and a test for flow repeated at the next temperature 5° F. lower.

"The test shall be continued in this manner until a point is reached at which the oil in the test jar shows no movement when the test jar is held in a horizontal position for exactly 5 seconds. Certain lubricating oils tend to move as a whole and should be very closely observed. The reading of the test thermometer at this temperature, corrected for error if necessary, shall be recorded. The pour point shall be taken as the temperature 5° F. above this solid point."

Physical Effect of Temperature

The effect of cold upon petroleum lubricating oils is not the same as upon simple fluids, such as water, alcohol, glycerine, benzine, etc., Texas engineers state. The latter have fixed and accurately ascertainable freezing points at which a complete change from the liquid to the solid state takes place, but lubricating oils, which are mixtures of hydrocarbons of various melting points, or freezing points, behave like solutions, and frequently deposit some portion of their constituents before the whole mixture solidifies.

Interesting phenomena which can only be explained by change in the inner or molecular structures are observed in the pour test of many lubricating oils. In realization of this fact, as far back as 1924 authorities of the American Society for Testing Materials carried on intensive studies to develop a method of test procedure which would give check results.

Earlier Investigations

J. B. Rather and H. M. Anderson* at that time discussed the proposal to secure uniformity in results by preheating the sample to some arbitrarily selected temperature, according to Texas engineers. They regarded this as objectionable because they found that the pour test obtained on preheated samples very frequently depends upon the degree of pre-heating. Furthermore, some oils after preheating give results which bear no relation whatsoever to the condition the oil will ultimately attain when stored at ordinary atmospheric temperatures.

The purpose of their work was, therefore, to secure uniformity in test regardless of any previous heat treatment or storage condition, and at the same time to develop a method of test which would give results directly related to the actual condition of the oil in storage.

Changed by Heat Treatment

In this work, eight oils were selected, most of them being products which gave abnormal results by varying heat treatments prior to test. In their preliminary experiments the investigators found that in many cases repetition of the A.S.T.M. procedure on the same sample one or more times caused the oil to return to its final equilibrium with regard to pour point, regardless of previous heat treatment, when the equilibrium was taken to be the condition the oil attained in laboratory storage.

They also found, however, that heat treatment of certain oils produced a semi-permanent elevation of pour point which was not rectified by this procedure, and that heat treatment of certain others produced a semi-permanent lowering of the pour point which also was not rectified by the method of test.

As a result of this work the investigators reached the following conclusions:

"1. If an oil is heated to any specified temperature prior to testing, or immediately prior to receipt by the testing laboratory, the pour point will depend on the temperature to which the oil has been heated.

"2. In all cases the 'high point,' that is, the preheating temperature at which the maximum possible pour point is attainable, is at about 115° F., and the pour thus obtained more truly represents the ultimate condition the oil will reach in storage than any other.

"3. In order to secure concordant results regardless of any previous heat treatment to which the oil has been subjected prior to receipt by the testing laboratory, it is only necessary to carry out the simple procedure outlined above. No sample, the heat treatment of which has occurred 24 hours previous to testing, requires repetition of the procedure to yield concordant results."

Present Method Formulated

On the basis of this work and more recent developments in studying the behavior of oils containing pour point depressants, the present methods of test, as outlined heretofore, have been formulated. Resultant data developed by Sub-Committee 16 of Committee D-2 of the A.S.T.M. has indicated that by use of a slower rate of cooling it is practicable to ascertain our tests for oil containing pour point depressants, which will be in conformity with actual performance. The revised method of test can also be applied to other types of oils without affecting the results obtained.

"Another factor which has an effect on the test is stirring the oil while cooling to determine the pour test," the Texas report states. "This is contrary to good practice, for where an oil is stirred, it solidifies at a lower temperature than when held stationary. This may be explained on the assumption that the movement of the oil destroys the formation of a fine network of microscopic particles of paraffinic bodies which are separating out.

"This segration gives the oil a certain support and thereby facilitates solidification. In an analogous way this explanation may apply to the influence of pre-heating; the waxy particles being probably transformed by warming into a very strongly dispersed state, from which it is possible to form a finer and thicker network than in the oil which has not been heated."

Conclusion

In conclusion, it is of interest to quote the opinion of the A.S.T.M. in regard to significance of results of cloud and pour tests.†

"The cloud point is of value when the oil is to be used in wickfeed service, or when a haze or cloud in the oil above a given temperature would be objectionable for any reason. However, the test may give misleading results if the oil is not dry, due to the separation of water, and the test should always be interpreted with this

*Procedure of the A.S.T.M., Volume 24, 1924, Part I, Page 553, Proposed Modification of the A.S.T.M. Pour Test applicable to those oils which give erratic results by the present method.

†The Significance of Tests of Petroleum Products, Report of Committee D-2 on Petroleum Products and Lubricants, 1929, P. 7, also A.S.T.M. Proceedings, 1928, Volume 28, Part 1, Page 485.

SERVICE NOTES

By K. M. Newcum

Relief of Gas-Binding In High-Side Floats

HIGH-SIDE floats of the older types have a habit of gas binding. A gas-bound float presents a distinct service problem of its own, as the effect upon the system is similar to that of a shortage of refrigerant and often stumps the service man.

The high-side float operation is opposite that of the low-side float in that a higher liquid level opens the high-side float, whereas a higher liquid level closes the low-side float.

The high-side float is placed in the liquid circuit between the condensing unit and the evaporator, and its purpose is to supply liquid or saturated vapor to the evaporator, as liquid is supplied from the condensing coils.

The high-side float will remain closed until sufficient vapor has been condensed into a liquid and allowed to accumulate in the float chamber, at which time the liquid level is raised, consequently raising the float, and releasing the liquid from the float to the evaporator. This process should be continuous and automatic as long as the correct charge of refrigerant is present in the system.

However, in some cases even though the refrigerant charge is sufficient and all other parts of the system are apparently in good working order, the float does not function correctly—that is it does not allow sufficient liquid to be released to the evaporator, resulting in poor refrigeration and short running time of the compressor.

Gas Accumulation in Float

Assuming there are no obstructions in the refrigerant lines and the float assembly is level, the cause of the condition may be traced directly to an accumulation of gas in the top part of the float chamber, directly over the liquid level and float ball, which in effect is creating a pressure against the liquid in the float chamber, preventing the level from raising.

In this respect the liquid that is being condensed by the condensing unit is prevented from entering the float. Thus the level is not raised, the float remains closed, and the evaporator is being starved.

Most floats of this type are equipped with a ¼-in. brass pipe plug for purging purposes. This plug is located in the top of the float chamber at the highest point. When the float becomes gas-bound this plug may be loosened, allowing the gases to escape into the air, thus relieving the pressure or the binding effect in the float.

The line leaving the float to the evaporator will immediately frost when the pressure has been relieved, and the system should function properly for an indefinite length of time. There is no assurance that this condition will not repeat in due time, and it has been found that it does repeat.

Eliminating the Condition

Different methods have been employed to eliminate this condition, or rather simplify this purging operation. Several systems of this type have been equipped with a line from the top of the float chamber to the low side of the compressor with a suitable line valve.

The line valve may be opened allowing the gases to be by-passed from the float chamber to the low side of the system. Sometimes the user has been instructed as to the use of the line shut-off valve, for purging the gas-bound float chamber.

This method proved far more satisfactory, than the original method of loosening the plug, but did not completely eliminate the necessity for attention.

The approved method of eliminating gas binding, is as follows: Fill the pipe-threaded end of a ⅛-in. pipe to ¼-in. flare fitting, with about ¼ in. of soft solder, completely closing the opening in the fitting. (About ¼ in. of solder is sufficient.)

Drill the smallest possible hole through the solder. A number 64 drill or smaller is recommended, as a number 64 drill will make a .0155 orifice. Insert this special fitting in the ⅛-in. pipe threaded opening in the top of the float chamber.

Connect a ¼-in. line from this special made fitting to a ¼-in. line shut-off valve. Install a ¼-in. flare x ¼-in. flare x ⅛-in. pipe tee in the service gauge opening of the suction shut-off valve on the side of the compressor. Connect a ¼-in. line from the line shut-off valve to the tee. Install a sealed cap on the remaining tee opening (which may be removed in attaching the compound gauge).

It can be seen that by leaving the line valve open, and the suction shut-off valve backed off the seat, the gas from the top of the float chamber will have a constant channel of escape. Thus a steady purging action will be effected, the gases being by-passed from the float chamber to the low side of the system. Gas binding is thus completely eliminated.

In as much as the orifice in the special ⅛x¼-in. fitting is so small, the amount of gas that is being by-passed from the high to the low side will have no appreciable effect upon the running cycles, or the general operation of the system.

Testing the System

The line valve may be closed while testing the compressor or performing other service operations to the system, but must be left open during normal operation of the system. The suction line shut-off valve must, in normal operation, be backed all the way to the left, then turned to the right about one full turn.

If trouble is experienced in using such a small drill to make the opening in the solder, a short piece of 28-gauge steel wire may be placed through the opening in the fitting while it is being filled with solder, after which time the wire may be pulled out with pliers, resulting in a .015 orifice.

TEXAS ENGINEERS & ASTM DISCUSS FACTORS IN OILS

(Concluded from Page 18, Column 5)

fact in mind. In general, the cloud point is of more limited value and narrower range of application than the pour point.

The pour point gives an indication of the temperature below which it may not be possible to pour or remove an oil from its container, or below which it might be dangerous to use the oil in gravity lubricating systems, where the head tending to produce flow is small.

"However, it should be borne in mind that the size and shape of the container, the head or force exerted upon the oil, and the nature of its physical structure when solidified, all have an effect upon its tendency to flow.

"Accordingly, it is self-evident that no single test can be devised which can be taken as a positive and direct measure of the performance of an oil under all conditions of service, and the pour test should be regarded as giving only an indication of what may be expected.

"Consequently, cloud and pour points should be interpreted in the light of actual performance under the particular conditions of use."

BOOKS

"HEAT TRANSMISSION"

Author: William H. McAdams. Publisher: McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York, N. Y. Number of Pages: 383. Date of Publication: 1933. Price: $5.

HEAT transmission, which is a highly important subject to designers of all manner of mechanical apparatus, is the subject of the new book for students and practicing engineers written under auspices of the National Research Council.

Because of the wide variety of equipment in which heat transmission is a factor, the book treats *principles* rather than *applications* on the theory that the principles underlying all heat transmission are the same and that the solution of any individual problem becomes relatively easy once the principles are understood.

The few references to refrigeration are in connection with data developed in studying heat transmission factors in refrigeration equipment. There is no topical treatment of refrigeration.

The book is divided generally into the three kinds of heat transmission: conduction, radiation, and convection. Each section correlates original data from a number of reliable investigators in plots or graphs to make it usable for other engineers confronted with similar problems.

The section on conduction includes two chapters, the first dealing with steady conduction of heat, thermal conductivities, effect of shape of bodies, and resistances in series and parallel; the second chapter considers unsteady conduction as in heating and cooling of solids.

The second section explains radiation between solids, radiation from flames, and general problems of furnace design where heat is transferred simultaneously by several mechanisms.

A major portion of the book is devoted to heat transmission by convection. Here are treated free and forced convection of fluids inside pipes, fluids outside pipes, condensing vapors, etc.

A helpful portion of the book is the appendix containing tables and charts of thermal conductivities, specific heats, latent heats of evaporation, viscosities, and miscellaneous tables (such as steam tables), conversion factors, and dimensions of steel pipe.

BEER COOLING

Refrigeration Service Men Should Study Methods of Handling Draft Beer

By Arch Black, Refrigeration Engineer, Melchior, Armstrong, Dessau Co.

SINCE the legalization of beer a great demand has been made for refrigerating equipment to cool the 3.2 amber fluid, and consequently an increased demand on the service department. A very great increase! Many service men were called on the job, and like a lot of us didn't know what it was all about. The customer would be full of complaints—flat beer or excessive foam—and badly disturbed about the business he had lost, condemning the refrigeration equipment, of course, as the condition was never experienced with ice.

In some cases the trouble could be traced to a defect, but in the majority of cases, the service man was somewhat bewildered and had no excuses to offer.

The fact was that quite often the condition complained of was or would have been experienced with ice. The customer would of course deny this and unless the service man could intelligently explain the cause, the refrigeration equipment received a "black eye."

Know How to Handle Beer

A great deal of the trouble has been traced to the condition of the beer and the manner in which it is dispensed. True, the brewers should and will help to remedy this condition. Nevertheless we are in a new era, with many who never handled beer, and many who knew how but have forgotten. The result is that we in the refrigeration industry should know more about the handling of beer in order that we be in a position to prove that not all the troubles reported are the fault of mechanical refrigeration.

One point to remedy right away is for salesmen never to give the customer the impression that as soon as the mechanical equipment is installed, it is going to correct every trouble, for after all draft beer is more delicate than milk.

Draft beer is not usually pasteurized, and is therefore full of live yeast organisms which give it a different flavor from bottled beer.

Bottled beer, being pasteurized, is immune from temperature changes and does not require the same amount of care as does draft beer. With bottled beer, the customer needs only be instructed to store it in a cool place and keep it out of the sunlight. When cooling, it should be placed in the refrigerator for from 12 to 18 hours before selling.

Careful Handling

As already stated, draft beer must be handled carefully. It is through the careless handling of the beverage that very often a service call is made, and unless the service man knows exactly the condition the beer should be in and the proper dispensing method, he is at a loss. If he knows how it should be handled he will be more able to diagnose the trouble and if necessary instruct the customer.

Most service calls do not require the service man to get involved in the customer's business, but in the cooling of beer it would seem that the service man must take the burden and learn all he can about beer and how to dispense it to prevent the refrigeration equipment being condemned when the trouble is elsewhere.

When instructing the customer care must be taken not to let him think that you know more about his business than he does. Tact must be used, and here as elsewhere the service man can prove his qualifications as a "diplomat."

Many times it will be found that after checking up the system, it will only be necessary to have a good talk with the customer or bartender.

Temperature Important

First, realize that the temperature of beer is most important and should be controlled during brewing, distribution, and serving. Many articles have been written on these subjects and both sales and service men should read such data. The BEER COOLING DIRECTORY AND HANDBOOK gives valuable data on such subjects.

After the service man has read such information, experience will soon enable him to diagnose troubles readily.

The most common complaints are flat, warm or foamy beer. Foamy beer is really the worst condition to contend with, as so many causes may result in this condition, such as too small lines, restricted lines and connections, and keg tapped too soon after handling (a keg should be in precooler at least 12 hours after handling).

Other Causes of Trouble

Other causes of this trouble are: temperature of beer in keg too high, long runs of un-insulated lines from keg to cooler allowed the beer to warm up; un-insulated lines passing through warm areas or contacting warm pipes.

Measures to prevent a foamy condition from this cause can usually be taken care of at the time of installation. Preventative methods are dependent upon the installation.

One installation in Boston, where the lines from precooler to cooler extend over 100 ft., was taken care of at installation to the satisfaction of the customer by strapping a cold water circulating line to the block tin beer lines. In another installation, where the run was much shorter, a duct was built encasing the beer lines and refrigerant lines.

From these two methods the reader can readily appreciate that he can use his own ideas to best suit the installation.

Other conditions causing foam may be traceable to the grade of beer itself or a decidedly wild keg of beer. Trouble in this respect is somewhat diminishing, as the brewers are not quite so rushed as they were several months ago. It can be noticed, however, that some beers are more highly carbonated than others.

This may be due to the fact that some brewers inject carbonation into their beers, the amount varying, dependent on temperature. Other brewers rely only on the natural carbonation from the beer.

As time goes on, this condition will gradually be rectified by the brewers, and possibly it may be their intention even to pasteurize draft beer. This is done by many brewers in Continental Europe.

Excessive foam may be also caused by the pressure on keg being too high or the manner in which the glass is held or faucet opened.

The complaint of "flat beer" is more readily traceable as it is very often caused from a leaky keg. Excessively chilled beer will also be flat, and when this is the case it is usually cloudy.

Check Operation of System

On checking a complaint on "warm beer," it is best to check the operation of the system first and be satisfied that it is all right. In fact, it will be found an advantage upon any complaint to assure yourself that the system is in perfect condition before going into details with the customer.

When satisfied in this respect, consider the exit temperature of the beer. If this complaint is stated by the customer to be periodical, it is usually caused by drawing in excess of the cooler's capacity or the condensing unit's capacity during rush peaks, or the capacities being lowered due to the inlet temperature being high.

The rate of flow should also be taken into consideration, especially on coolers not providing storage. At the time of sale, the rate of flow should be fully explained to the customer as a great deal of service calls can be traced to this.

When explained to the customer he very often exclaims, "Why wasn't that explained to me before" and is then satisfied. But the expense of the call is charged to the service department.

When checking temperatures of incoming beer do not decide that it is governed by the surrounding air temperatures, nor yet decide that because the keg is sweating the beer must be cold. The heat transfer through the keg is slow, and the keg could easily sweat if it were in the chilling room too short a time before leaving the brewery to bring the temperature of the beer down.

A simple way to determine the temperature of beer in the keg is to close off the tapping rod valve, disconnect the line to the beer faucet, place the thermometer in the tap rod connection, and very slowly open the valve and allow sufficient beer from the keg to pass over the bulb of the thermometer. Be sure to open the valve very slowly, otherwise considerable beer will be lost and spattered all over.

Briefly, the foregoing covers the most common complaints, but of course there are many others that the customer thinks up when his payments are due and many minor things that electric refrigeration equipment is blamed for.

Several weeks ago, a call was brought to the writer's attention that certain equipment was frozen up. After tracing the trouble down, it was found that there was no beer in the keg so it is natural that it would not pass through the cooler.

This type of call certainly indicates that a customer is not very well acquainted with the handling or dispensing of beer, and it is on such a call that the service man can show merit by explaining details to the customer intelligently.

A job well serviced is a job well sold and a satisfied customer is of great sales importance. The service man can hold a customer better than anyone, and it is for this reason that service departments should at least have "a working knowledge of beer."

Tricks to Serving Beer

There are tricks to drawing and serving beer. Glasses should be preferably precooled, especially the thick ones or mugs. A warm glass causes a quick reaction on beer as the carbonic acid gas expands and leaves the beer, making it flat and unpalatable.

Don't drink beer with milk or fat on the lips as it causes foam to collapse and makes the beer look flat. A similar condition may be found if the glasses are washed where milk bottles or glasses have been cleaned. The slightest film of fat on the glass is detrimental.

One other important fact is that ice-cold beer has no taste. Intense cold benumbs the taste nerves, and consequently the beer is insipid. In addition to this, when a cold glass of beer reaches a warm stomach and finally warms up it gives off the surplus gas rapidly. The person drinking the beer too cold gets that "full" feeling.

If this is explained to the owner of the equipment he will readily learn that the palatable temperature of beer is 43° to 45° F.

Rhapsody in Brew

That breweries realize that beer is properly cooled by electric refrigeration is evidenced by the installation of Kelvinator-Temprite in the service bar at the Schlitz brewery in Milwaukee.

BEER DISTRIBUTOR USES FRICK COOLING SYSTEM

CHICAGO — Chas. H. Weber Co., distributor of domestic beers in this city, has installed Frick refrigeration for a large storage room in which barrels are cooled to about 40° F. before being loaded on trucks.

The room measures 30x26x11 ft. and is equipped with suspended fin coils, which are connected to a 3-hp. Frick methyl chloride compressor. There are no drip pans under the coils, the moisture being allowed to drip onto the tops of the barrels, this being in accordance with the approved method of storing kegs.

The installation was made by the Midwest Engineering Co. of this city, distributor of Frick equipment.

Beer Cooler Operates In Soda Fountain

SPRINGFIELD, Mass. — Frigidaire beer-cooling equipment has been installed in the soda fountain of the Merry Eating cafe at 93½ State St. here.

The beer cooler is operated independently of the fountain, however, and temperatures of 40° F. are maintained by means of a separate temperature control.

Flexible Beer Tubing Is Introduced

NEW YORK CITY—American Cooler Co. of this city is introducing a new flexible metal tubing for connection of beer barrels with the draft arms of dispensing units, according to A. Hedeman, the manufacturer's sales manager. "Flex-Pipe" is the trade name given the product.

Announcing—

The 1934 Edition of The Refrigeration Directory and Market Data Book

As specific examples of how the 1932 edition has served to focus attention of prospective buyers on equipment advertised in the Directory, a few of the many inquiries which have come to us are quoted below.

Our answer to these inquiries has been *"You will find the information you desire in the Refrigeration Directory and Market Data Book."*

"Will you kindly give me the names and addresses of firms who manufacture sylphons such as used in high and low pressure controls. A reply by letter would be appreciated."—P. D. Ferguson, Toronto, Ontario.

"Will you kindly let us know what you have in the line of a directory of manufacturers of electric refrigeration accessories, such as water coolers, beer coolers, etc."—R. W. Hale, Commercial Specialist, E. Pulver Cook, Inc., Providence, R. I.

"Would you please advise us where we can get in touch with manufacturers of finned coil evaporators for use with brine?"—H. T. Scott, The American Paper Bottle Co., Toledo, Ohio.

"Will you kindly send us a late list of manufacturers of air-conditioning units including units which can be used as attachments for hot air furnaces."—R. B. Ries, Treasurer, Midland Implement Co., Inc., Billings, Mont.

"Can you furnish us the names of several sources of supply of artificial foods for use in displaying electric refrigerators. An early reply will be appreciated."—J. P. McFarren, Ludwig Hommel & Co., Pittsburgh, Pa.

"We have an inquiry from Paris from a firm who wishes to be placed in touch with American manufacturers of automobile trucks equipped with refrigerators. As we do not have a list of these manufacturers, I am wondering if you would be so kind as to supply us with a list, that is, if you have one available."—H. E. Way, Assistant Chief, Electrical Equipment Div., Bureau of Foreign and Domestic Commerce, Department of Commerce, Washington, D. C.

"Will you please inform us where we may purchase refrigeration compressors assembled or knocked down. We wish to assemble under our own name quite a few compressors and need this information as soon as possible."—Wm. J. Parker, Kittanning, Pa.

"We are desirous of getting in touch with the most prominent manufacturers of cooling equipment for commercial refrigerators. Inasmuch as you publish the Refrigeration News, perhaps you can give us the names and addresses of the most prominent companies in the United States manufacturing this type equipment."—J. D. Freeze, The Armco International Corp., Middletown, Ohio.

"I am in the market for a cold storage plant, preferably of the ammonia compression type which would be of a capacity that would handle 5,000 barrels of apples and maintain a temperature of about 32° F. Could you forward this, or refer me to any of your advertising clients, handling this type of equipment."—Chas. A. Woodsum, Mechanic Falls, Me.

"Can you refer us to makers of metal suitable for seal parts in a refrigeration compressor? We have had some difficulty with the seals sticking after the machines have been stopped for a month or two. We think perhaps a different metal for one of the members of the seal might possibly solve this difficulty. At the present time we are using semi-steel for one member and hardened and ground steel for the other."—Albert E. Thornley, Supt., Narragansett Machine Co., Pawtucket, R. I.

"One of our foreign clients is interested in receiving catalogs and other literature on the different types of thermostats, expansion valves, coils, sylphon valves, etc. for refrigeration. If you will give us the names of manufacturers of the above lines, we shall feel obliged."—Geo. Wettach, Purchasing Dept., Smith Kirkpatrick & Co., Inc., New York, N. Y.

"We note you publish the Refrigeration Directory. Does this contain a list of manufacturers' parts, etc. And what is its cost? Also can you refer us to a manufacturer of bellows seals?"—I. C. Renier, Renier Bros., Dubuque, Iowa.

"Can you furnish us with the names of any manufacturers who supply wax imitation foods for use in refrigerator displays? We already have a source of supply for papier mache foods, but one of our customers is interested in getting wax items. Any information which you can furnish will be greatly appreciated."—P. W. Endriss, Merchandise Advertising, Westinghouse Electric & Mfg. Co., Mansfield, Ohio.

"Could you please give me a list of manufacturers of ice cream making equipment. We have a customer here who would like to take over the distribution of such equipment and would appreciate any help you could give us in getting this information. Are there any such manufacturers on the Pacific Coast?"—J. H. Ehlers, Heavy Duty Sales, Utah Power & Light Co., Salt Lake City, Utah.

"Kindly have some soda fountain manufacturers send us a catalogue. We are planning on buying a nice new fountain."—Frank Scheck, Scheck Supply Co., Albuquerque, N. M.

"Enclosed find check for one year's subscription to the News. Please give us names of several manufacturers of condensers and receivers for domestic and commercial evaporators. We look forward to enjoying the News again."—T. A. Tallarico, Mgr., Refrigeration Sales & Service Co., Keokuk, Iowa.

"As we are planning to open a general service department, can you advise us if any firm manufacturers a complete line of replacement parts for all makes of machines."—N. E. Odom, Service Manager, Claude H. Wolfe, Inc., Orlando, Fla.

The gathering of facts and figures, the revision of lists and the selection of new material for the big 1934 edition of the Refrigeration Directory and Market Data Book is well under way. The new Directory will be ready for distribution next February.

The 1932 edition of the Directory was the first book of its kind ever published. It was produced in answer to the demand for a comprehensive collection of factual information about the refrigeration industry. This initial collection and correlation of data was a tremendous job. No expense was spared to make it complete. When this first book went to press there were 470 pages. In October a supplement was added making a total of 590 pages.

There is no question regarding the great value of the Refrigeration Directory and Market Data Book to manufacturers, engineers, sales executives, distributors, dealers, service men and salesmen. The whole industry has acclaimed it with the result that today the Refrigeration Directory and Market Data Book has become the recognized register of all trade mark refrigeration products. It is the accepted handbook for all suppliers who serve the refrigeration industry and all buyers of refrigeration products.

Owing to the disturbed economic conditions during the early part of this year it appeared inadvisable to undertake the publication of a 1933 edition. As a result hundreds of directory corrections have piled up, statistical information is far out of date, and much new market data has been collected. The whole industry presents a new picture.

Advertisers who bought space in the first edition had to do so on faith. They knew that such a book was needed and they believed that we could deliver it. Now, however, with this industry acceptance, advertisers in the 1934 Refrigeration Directory and Market Data Book may act upon knowledge. They know what they are buying. They know it will produce results.

Farsighted manufacturers are making plans now to get a bigger share of 1934 refrigeration business. It is not too early to consider the manner in which the Refrigeration Directory and Market Data Book can function in giving you a permanent sales contact with your next year's refrigeration market.

Make provision now in your 1934 sales and advertising appropriation for an adequate sales message in the Refrigeration Directory and Market Data Book.

Now is the time to reserve space. The page rate is $100.

BUSINESS NEWS PUBLISHING CO.

550 Maccabees Bldg., Detroit, Mich.

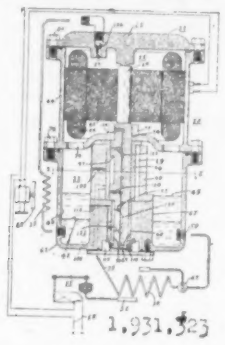
PATENTS

ISSUED OCT. 17, 1933

(Continued from Last Issue)

1,931,323. REFRIGERATING APPARATUS. Alex A. McCormack, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a corporation of Ohio. Application Aug. 30, 1930. Serial No. 478,959. Renewed Nov. 3, 1932. 9 Claims. (Cl. 62—115.)

1. Refrigerating apparatus comprising in combination a casing, a compressor within said casing, a motor for driving said compressor within said casing, said casing



1,931,323

providing a reservoir for a body of lubricating oil and for a body of liquid refrigerant, a condenser located outside said casing and having a connection with said casing for condensing the gaseous refrigerant discharged by said compressor and for delivering the condensed refrigerant to said reservoir, an evaporator connected on one end thereof to the liquid refrigerant space in said casing and its other end leading to said compressor and means for delivering said lubricant to said compressor and returning said lubricant to said reservoir.

1,931,347. APPARATUS FOR PREPARING POTABLE WATER. Norman H. Gay, Los Angeles, Calif. Application Jan. 13, 1932. Serial No. 586,425. 16 Claims. (Cl. 62—124.)

1. In a water purifying plant, means for compressing gaseous refrigerant two condensers for receiving the compressed gaseous refrigerant and liquefying the same, an evaporator connected to one of said condensers and providing a chilling surface, means for passing impure water over said chilling surface whereby to form pure ice from the same and to discharge therefrom water containing a higher proportion of impurity, means for employing the ice thus formed for cooling one said condenser, independent means for cooling the other said condenser, and devices for controlling the flow of gaseous refrigerant from said compressing means to said condensers.

ISSUED OCT. 24, 1933

1,931,503. REFRIGERATOR. Leroy A. Matson, Park Ridge, Ill., assignor, by mesne assignments, to Grigsby-Grunow Co., a corporation of Illinois. Application Nov. 8, 1930, Serial No. 494,357. Renewed April 15, 1933. 2 Claims. (Cl. 20—35.)

1. In a refrigerator cabinet, a door comprising an outer metal panel having inturned edges, said edges being so shaped that a peripheral flange adapted to abut against the front border of the door opening of the cabinet is formed, an inner metal panel having its edges bent, rigid heat insulating strips secured to the edges of said two panels and maintaining said panels in spaced relationship, and a gasket having a sealing portion disposed along said peripheral flange, said gasket extending to said heat insulating strips and being maintained in place by the same fastening means which maintain the outer panels and strips together.

1,931,666. JOINT. David E. Lindquist, Port Huron, Mich., assignor to Mueller Brass Co., Port Huron, Mich., a corporation of Michigan. Application Nov. 30, 1931. Serial No. 577,942. 2 Claims. (Cl. 285—115.)

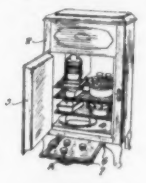
1. A pipe fitting comprising a body having a socket adapted to telescopingly receive a pipe or like member, said socket having a front substantially cylindrical portion and a rearward inwardly tapering portion, said inwardly tapering portion being provided with serrations parallel to the axis of the socket, said serrations having inward sharp edges whereby they are adapted to receive and cut into to hold the said pipe or like entering member.

1,931,897. COMPRESSOR-DRIVE SUPPORT FOR REFRIGERATOR CARS. Julius Kopsa, Chicago, and Edmund D. Brigham, Jr., Highland Park, Ill., assignors to North American Car Corp., Chicago, Ill., a corporation of Illinois. Application Nov. 6, 1930. Serial No. 493,900. 16 Claims. (Cl. 105—107.)

1. In a mechanism for obtaining power from one of the axles of a railway car, means for supporting a sprocket wheel in driving alignment with a sprocket secured to the car axle, said means comprising a bracket shaped at its outer end to be anchored to an end portion of a truck side frame of the car, the bracket extending inwardly around the adjacent car wheel and formed at its free end portion to support a sprocket wheel.

1,932,003. REFRIGERATOR CABINET. Frank R. West, Detroit, Mich. Application May 17, 1933. Serial No. 671,444. 8 Claims. (Cl. 62—89.)

1. In a refrigerator cabinet of the type having a food compartment and a door for normally closing the entrance to said food



1,932,003

compartment, a combined, shallow transfer shelf and tray slidably carried by the cabinet and movable when in use to a position at the front of and adjacent the bottom of the food compartment whereby when the door is opened the refrigerated air from the food compartment will be forced across the surface of the transfer shelf and tray.

1,932,007. REFRIGERATING SYSTEM. Ernst S. H. Baars, Milwaukee, Wis., assignor to The Vilter Mfg. Co., Milwaukee, Wis., a corporation of Wisconsin. Application July 5, 1932. Serial No. 620,813. 10 Claims. (Cl. 62—3.)

1. In a refrigerating system, a compressor, an evaporator, an accumulator, means for controlling the pressure of the refrigerant delivered from said compressor to said evaporator, means operable by the level of liquid in said accumulator for controlling the quantity of refrigerant delivered to said evaporator, thermostatically controlled means for shutting-off the flow of refrigerant from said evaporator to said compressor, and means operable by pressure within said system for controlling the circulation of air in proximity to said evaporator.

1,932,076. PLANT FOR UTILIZING WASTE HEAT. Harald Kemmer, Berlin, Germany. Application Dec. 6, 1928, Serial No. 324,336, and in Germany Dec. 6, 1927. 1 Claim. (Cl. 62—179.)

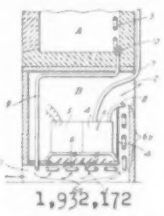
The process of utilizing waste heat of coke oven plants, gas works and the like, said process consisting in using said waste heat for producing cold by means of absorption type refrigerating machines, and in using the cold so produced for the purification of the produced gas (coke oven gas, city gas) by cooling at low temperatures.

1,932,162. REFRIGERATOR VAN. Giuseppe La Cauza, Milan, Italy. Application Aug. 6, 1930, Serial No. 473,456, and in Italy Aug. 7, 1929. 4 Claims. (Cl. 62—90.)

1. A cooling device for vehicles for conveying goods, particularly rail vehicles, comprising in combination with a vehicle frame hollow walls subdivided into cells and surrounding said vehicle frame, the walls being composed of a permeable porous outer portion, and an impervious good heat conducting inner portion adapted to accommodate the evaporating liquid between said portions.

1,932,172. MECHANICAL REFRIGERATING APPARATUS. Harry S. Estler, Detroit, Mich., assignor to Chicago Pneumatic Tool Co., New York, N. Y., a corporation of New Jersey. Application Dec. 23, 1929. Serial No. 415,914. 17 Claims. (Cl. 62—116.)

1. In a household refrigerator having a food storage compartment and an apparatus compartment therebeneath having an



1,932,172

air inlet at the bottom and a vent adjacent the top thereof, refrigerating apparatus in said apparatus compartment comprising a compressor adjacent the bottom of the compartment and a condenser having angular portions, one of which extends horizontally beneath said compressor.

1,932,184. FREEZING UNIT FOR HOUSEHOLD REFRIGERATORS. Leland G. Knapp, Chicago, Ill., assignor to Montgomery Ward & Co., Inc., Chicago, Ill., a corporation of Illinois. Application Oct. 31, 1929. Serial No. 403,699. 8 Claims. (Cl. 62—95.)

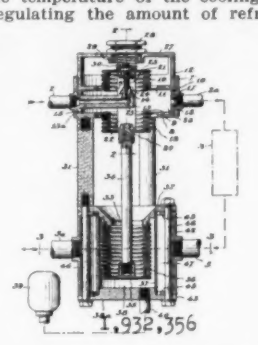
1. A refrigerating unit comprising a casing, conduits for circulating a refrigerant within said casing, and finely subdivided aluminum interposed between said conduits and said casing, said aluminum being held in place by a binding medium.

1,932,268. BEVERAGE COOLING REFRIGERATOR. Chester A. Frick, Muncie, Ind., assignor to Glascock Brothers Mfg. Co., Muncie, Ind., a corporation of Indiana. Application Feb. 17, 1932. Serial No. 593,514. 8 Claims. (Cl. 62—1.)

1. In a dispensing refrigerator, the combination with a receptacle having a cooling compartment, refrigerating means for cooling the contents of said compartment, a closure for said compartment, a lock for preventing the opening of said closure and thermostatic means subject to the temperature conditions of the compartment for controlling the operation of said lock to permit the opening of said closure when temperature of the compartment reaches a predetermined point.

1,932,356. THERMOSTATICALLY CONTROLLED EXPANSION VALVE. Dean C. Seitz, Cleveland, Ohio, assignor to The Russ Mfg. Co., Cleveland, Ohio, a corporation of Ohio. Application Jan. 16, 1931. Serial No. 509,100. 5 Claims. (Cl. 62—8.)

1. In an expansion valve device having an expansion valve for supplying refrigerant to a cooling device, means operated by the temperature of the cooling device for regulating the amount of refrigerant



1,932,356

passing through said expansion valve, said means comprising a flexible member, means connecting said flexible member with said valve, a closed chamber adjacent said flexible member, and a hollow member connected for communication with said closed chamber, said closed chamber and hollow member containing a highly volatile fluid sensitive to temperature changes, said hollow member being positioned near said cooling device whereby increase in temperature of said cooling device will increase the pressure of the fluid in said closed chamber and thereby cause said flexible member to open said expansion valve, and a second chamber surrounding said closed chamber for receiving refrigerant discharged from said cooling device whereby an excess of refrigerant supplied to said cooling device will enter said second chamber and decrease the pressure of the fluid in said closed chamber and allow said flexible member to return to normal position to thereby close or partially close said expansion valve.

1,932,379. METHOD OF CONDITIONING AIR. Earle W. Ballentine, Chicago, Ill., assignor to Solar Industries, Inc., Chicago, Ill., a corporation of Illinois. Application Aug. 3, 1931. Serial No. 554,912. 1 Claim. (Cl. 167—3.)

The method of conditioning air consisting of first introducing into the air an amount of ozone in excess of that required to give the desired air condition and then heating the air to remove the objectionable excess ozone remaining in the air after the latter has been conditioned.

Century Develops Dual Motors in 4 Sizes

ST. LOUIS—Century Electric Co. has developed dual motors in ½, ¾, 1, and 1½ hp. sizes. These motors operate on direct current from generators on the moving equipment when the equipment is running, and from central station power when the equipment is standing.

Ships, auxiliaries operating on direct current ship power at sea and on central station power when in port, and mechanically refrigerated railway cars are good examples.

Dual motors operate portable tolls from d.c. or a.c. central station power when the equipment is moved from one location to another, or from one part of the same plant to another when the same kind of current is not available.

The dual motor consists of two separate and distinct motors in one two-bearing frame with the two rotors on one shaft. This makes a compact unit that is convenient to install, occupies a small space, and requires only one shaft connection to the driven apparatus, the designers claim.

CATALOGS

Wagner Motors

How horizontal-type motors can be mounted vertically is explained in a new loose-leaf sheet entitled "Bulletin on Wagner Vertical Motors," issued by Wagner Electric Corp., St. Louis. Three types of vertical motors illustrate the discussion on the first page, while the second is devoted to installation pictures showing different applications.

G-E Testing Equipment

Portable testing equipment manufactured by General Electric Co., Schenectady, N. Y., is the subject of the company's bulletin GEA-1754. Pictures of the equipment accompany the description and specifications of high-voltage and high-current models. Induction voltage regulators are discussed on the last page.

Matheson Oils

Matheson Carbolube and Sulfolube refrigerator oils are described in a small four-page leaflet printed in red and blue, with the printing on the third and fourth pages inverted to stimulate interest. Accompanying the pamphlet is Bulletin XII, also sent out by the Matheson Co., East Rutherford, N. J., listing prices of the oils in chart form, comparisons of characteristics of the best-known refrigerants, and refrigerants used in each refrigerator.

Westinghouse Motors

Recommended for oil burner, fan and blower, centrifugal pump, grinder, and other industrial applications, Westinghouse type FH resistance split-phase motors are explained in a leaflet issued by Westinghouse Electric & Mfg. Co. at East Springfield, Mass. Construction, applications, and distinctive features are discussed.

SpeedWay Oilers

"Why Take a Chance on Your Oilers" is the title of a pamphlet issued by SpeedWay Mfg. Co., Cicero, Ill., picturing and describing its constant level and thermal oilers. Cutaway diagrams of the oilers in particular applications, prices, characteristics of the oilers, and descriptions of operation are some of the points covered.

CARBIDE & CHEMICALS CORP. WINS CHEMICAL PRIZE

NEW YORK CITY—First award for chemical engineering achievement to be given to a company rather than to an individual will be presented Dec. 9 to Carbide & Chemicals Corp. by the award committee of *Chemical and Metallurgical Engineering.*

Purpose of the award—idea of which was launched last May by the above publication—is to give public recognition to the company which, through some phase of chemical engineering, has made the most meritorious advances in the industry since 1930.

QUESTIONS

G-E Junior Compressors

No. 1421 (Virginia)—"Would you please tell me if the General Electric Junior uses a rotary or reciprocating-type compressor?"

Answer—The 1933 model has a rotary compressor. Last year's had a reciprocating compressor.

Kerosene Refrigerators

No. 1422 (New York)—"I am interested in a refrigerator operating on kerosene oil. I understand that Electrolux is coming out with such a system."

Answer—To date Electrolux has not brought out such a refrigerator, but the following companies offer them: Gibson Electric Refrigerator Co., Greenville, Mich., and Perfection Stove Co., 7609 Platt Ave., Cleveland, Ohio.

Air-Conditioning Manufacturers

No. 1423 (Distributor, Missouri)—"Kindly send me names and addresses of companies manufacturing air-conditioning units."

Answer—You will find such a list in the April 12 issue of ELECTRIC REFRIGERATION NEWS which featured air conditioning.

EARNINGS

EAST PITTSBURGH, Pa.—Net loss of $1,513,645 for the third quarter of this year has been reported by the Westinghouse Electric & Mfg. Co. here. This figure is for operations of the entire company, figures for the refrigeration division alone not being available.

The company's second quarter loss was $2,078,424 this year, while its third quarter loss in 1932 was $2,715,123.

Sales billed by all divisions of the company for this year's third quarter totaled $17,474,213, against $17,482,376 in the corresponding period last year and $15,926,335 in the second quarter of 1933.

Orders received amounted to $22,547,717 during the third quarter of 1933, as compared with $17,557,964 in the same quarter last year, and $14,126,064 in the second quarter of this year.

ROSEN'S STAR SALESMEN VISIT KELVINATOR PLANT

DETROIT—Raymond Rosen, Philadelphia Kelvinator distributor, and 40 of his star salesmen visited Detroit last week as guests of the Kelvinator factory organization.

Coming to Detroit from Chicago where they had been taken to A Century of Progress as reward for summer sales accomplishments, the men ended their vacation with a trip through the Kelvinator factory, and a visit to Canada.

The visitors were:

W. DeWolf, W. Beatty, William Dubrow, Buddy Dubrow, William Shore, Samuel Goldberg, Norman Ginsberg, A. Rothman, Max Carson, Leon Jacobs, H. L. Brown, W. Durham, Abe Shuman, John Daly, A. L. Castle, Jr., Nathan Birdman, William Jones, Harry Lasky, Joseph M. Hoey, and C. M. Trueb of Philadelphia; M. Carlin, Doylestown; M. Bruner and Emil Minnibach, Reading.

M. Walson, Chester; R. J. Collins, Melrose Park; M. Hass, Allentown; M. Kern, Slatington; S. Weinstein, Yeaden; Thomas Redman, Westchester; M. Harris and Earl McCoy, Norristown; M. Weiss, Media; M. Braverman, Bethlehem; W. Burkhardt, Pittman, N. J.; C. R. Turner, Cape Charles, Va.; D. Weiler and W. Brader, Egg Harbor, N. J.; M. Frederick and W. Cahoon, Wilmington, Del.; and Freed Dalrow, Pennsgrove, N. J.

NEW GRUNOW PLANT TO SPEED RADIO PRODUCTION

CHICAGO—To effect an increase in production of Grunow radios, General Household Utilities Co. is acquiring a fourth plant here, according to William C. Grunow, president of that organization. The new plant is to be used for radio cabinet manufacture.

Radio production schedule, originally set at 2,000 units per day, has been stepped up to 3,000 per day, says Mr. Grunow, and plans now call for another increase to 3,500 per day. Unfilled orders are now in excess of 100,000 sets, he adds.

Twelve hundred workers are now employed at the company's radio chassis assembly plant in Marion, Ind., the president said last week. Eight hundred workers are engaged in the three Chicago plants.

ALTER WIRING RULES IN ELECTRICAL CODE

NEW YORK CITY—Changes in regulations covering services and service equipment, conductors, wiring installation design, and emergency lighting are among the major revisions in the forthcoming 1933 edition of the National Electrical Code, the basic national code for wiring in almost all types of buildings.

Approval of the new edition as an American Standard is announced by the American Standards Association following its submittal by the National Fire Protection Association, sponsor for the project. The code is now the basis for official wiring installation regulations in more than 2,200 communities, a large number of which have adopted it in its entirety.

The following major revisions and additions are outlined by A. R. Small, vice president of the Underwriters' Laboratories and chairman of the sectional committee on the National Electrical Code under A.S.A. procedure:

Article 1: Definitions—a number of changes were made so as to secure conformity with the new proposed American Standard Definitions of Electrical Terms, ASA Project C42.

Article 4: Services and Service Equipment—a multiple tenant building may now have more than a single set of service conductors and service equipment. The omission of insulation on grounded neutral service conductors is permitted for a greater variety of conditions, first recognition of this practice having been recorded in the 1931 text. Similarly, the limitations upon the use of unfused meters placed ahead of the service switch are relaxed somewhat.

In *Article 6, Conductors,* provision is made for a flame-retarding as well as a moisture-proof finish on single conductor circuit wires.

A new type of so-called non-tamperable plug fuse is recognized in *Article 8, Automatic Overcurrent Protection of Circuits and Appliances.*

The regulations for protective *Grounding* in *Article 9* are completely rewritten with substantial improvement editorially. The technical changes include wider permitted use of artificial grounding electrodes and, with certain restrictions, the interconnection of a distribution primary lightning arrester grounding conductor with a grounded neutral service conductor.

Article 20: Wiring Installation Design—is a new chapter. Much of its text is lifted from other articles of the previous edition. It seeks to treat of the problem of adequacy of wiring and outlets. It is not settled just when requirements seeking to obtain adequacy for expected future use are beyond the police power. The new provisions are most conservatively stated, partly with this doubt in mind.

Article 41: Emergency Lighting—is likewise new. Provisions, formerly in Article 36, for theaters and the like, have been transferred and a general treatment of the problem of emergency and exit lighting (electrically) is worked out.

Much of the change in *Article 50: Circuits and Equipment Operating at More Than 600 Volts*—is because of transfer of former text to the chapter on Signs and Outline Lighting and to the new Article 51 on X-Ray and High-Frequency Apparatus. For power circuits the recognized use of high-voltage fuses has been extended. Clearances, both horizontal and vertical, above floors and from working spaces, of live parts at various voltages now appear in table form.

NATIONAL CHAIN PLANNED TO SERVICE AUTO RADIOS

CHICAGO—Grigsby-Grunow Co. is organizing and training a national chain of approximately 1,000 independent service stations to take care of Majestic auto radio sets, according to H. M. Pauley, Majestic's service chief.

"Automobile radio installation and service has peculiarities of its own which set it definitely apart from service on home sets," declares Mr. Pauley. "There must be adequate garage space for a number of cars while this work is being done. The power supply units of auto radio sets are a distinct departure from those in home radio receivers, and both the construction of the chassis and the design of the tuning controls are new.

"Our experience not only with the scores of thousands of sets sold through our distributors and dealers, but also in connection with the sets supplied to Ford and Terraplane, indicate that while every dealer can sell auto radios, the actual installation and service work should be in the hands of a comparatively limited number of expert organizations."

"Authorized Service Stations" will get the installations of Terraplane dealers, will get the service work on factory-equipped cars, and will be sent work by Majestic distributors.

From time to time they will be sent new data on car radio service.

CLASSIFIED

PAYMENT in advance is required for advertising in this column.

RATES: Fifty words or less, one insertion $2.00, additional words four cents each. Three insertions $5.00, additional words ten cents each.

POSITIONS WANTED

REFRIGERATION Service Man. Can repair any kind of electric refrigeration machine. College graduate in industrial-management engineering. Trained in electric refrigeration classroom theory and by practical laboratory experience. My field experience has been unlimited. Have tools and car. Single, age 25. Address Harry Miller, 2250 South Wabash, Chicago, Ill.

QUOTATIONS WANTED

DEVELOPERS of new sealed compressors, with orders available, desire quotations from well-equipped plant having ample machining, assembling, drying and testing facilities—not necessarily including cabinet building. Box 597, Electric Refrigeration News.

EQUIPMENT FOR SALE

FOR SALE—Sacrifice. Your own price. 1100 brand new Mueller intake and discharge brass valves. Box 598, Electric Refrigeration News.

FOR SALE. Two dehydrating or drying ovens manufactured by Young Bros. for refrigeration manufacturer. Excellent condition. Complete equipment. Used very little. Overall outside dimensions each oven, 59" wide x 77" high x 41" deep. Very reasonable. Detroit Engineering & Sales Co., 320 Beaubien St., Detroit, Mich.

INDEPENDENT SERVICE COMPANIES

HALECTRIC Thermostat repair service, Ranco, B & B. Two dollars each, one year guarantee, prompt service. Halectric Laboratory. 1793 Lakeview Road, Cleveland, Ohio.

MISCELLANEOUS

REFRIGERATION Mechanics, and Students. Blue Prints showing a variety of up-to-date commercial installations. Prints are easily read and all details are clearly shown. Explanatory text with each print. Write for descriptive folder. Box 596.

SELLS 102 WATER COOLERS

CHICAGO—C. C. Lindstrom, water cooler salesman for Westinghouse Electric Supply Co. here, recently closed two sales for a total of 102 coolers.